A COLLABORATION FOR FUTURE GROWTH

THE 2ND ANNUAL FUTURE OF WORK 4IR DIALOGUE 2023:

COLLABORATION FOR INCLUSIVE ECONOMIC GROWTH

Tshwane University of Technology
We empower people

iFoW
INSTITUTE FOR THE FUTURE OF WORK
AN INITIATIVE OF TSHWANE UNIVERSITY OF TECHNOLOGY | SOUTH AFRICA

FOREWORD

Professor Tinyiko Maluleke
Vice-Chancellor and Principal
Tshwane University of Technology

Welcoming the Future with Open Arms: A Foreword to the Future of Work Conference

As we gathered at the 2nd Annual Tshwane University of Technology two-day Institute for the Future of Work Conference and Gala Dinner from 18-19 October 2023, it was a celebration of collaboration, innovation, and the vibrant spirit of Mzansi. It filled me with immense pride to have been part of such a pivotal event. This gathering in the capital city of Mzansi, a beacon of resilience and innovation, symbolised the dawn of a new era in the evolution of work and education.

The Tshwane University of Technology stands as a bastion of learning with over 60,000 students, and has always strived to be at the forefront of technological and educational advancements. Our recent dialogue reaffirmed my belief that the path to future-ready education is paved with partnership and collaboration. The presence of industry leaders, government officials, and members of the Tshwane University of Technology community underscored the collective effort required to navigate the emerging landscape of the 21st century.

We find ourselves at a crossroads where traditional roles and industries are transforming. In places like Rosslyn and Pretoria West, we see the future of work unfolding - a future driven by innovation, entrepreneurship, and a relentless pursuit of excellence. This is not just a local phenomenon but a global shift, demanding a proactive response.

Our dialogue's reach, engaging millions of people in the media, hundreds of thousands online, and a thousand participants, is a testament to the urgency and enthusiasm with which we must approach this new era. We are tasked with preparing a generation of graduates who are not only adept at navigating this new world but are also equipped to lead and innovate.

I believe that the Tshwane University of Technology, with its rich history and resources, is uniquely positioned to take on this challenge. We seek to forge partnerships across various sectors - academia, industry, and government - to create a curriculum that is not only relevant but revolutionary. Our goal is to integrate cutting-edge themes like artificial intelligence, anti-gender-based violence initiatives, and climate change into our educational framework, ensuring our graduates are not just job-ready, but future-ready.

In conclusion, I extend my heartfelt gratitude to everyone who joined us at the dialogue. Your participation and insights have been invaluable. As we move forward, let us embrace the spirit of partnership and innovation. Together, we can shape a future that honours our rich heritage while boldly stepping into the new frontiers of the 21st century.

Thank you, and let's continue to make a difference.
Ekse Bafwethu, zwakalani, kom lat ons doen daai ding.

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EXECUTIVE SUMMARY

The 2nd Annual Future of Work 4IR Dialogue 2023: Collaboration for Inclusive Economic Growth, was held at the SunBet Arena, Times Square Casino in Menlyn, Pretoria on 18 and 19 October 2023. The 4IR Dialogue is a platform to raise critical questions concerning the changing dynamics of economies, technologies, and industries in response to 4IR, with perspectives from industry, government and academia. The event was hosted by the Institute for the Future of Work (IFoW) and the Tshwane University of Technology (TUT) for over 500 delegates over the two days.

The key objectives for the 2nd Annual Future of Work in 4IR Dialogue included: to create tangible, solutions-oriented sessions, fostering a roadmap towards future economies and industries; innovation showcasing through the discovery of technologies, offering opportunities for the previously disadvantaged; and to foster collaborations to engage in sessions for co-creation of interventions across industries and institutions.

Chapter One covers how the Dialogue came into being, how technology is transforming South Africa, and the background to IFoW. Chapter Two looks at how tech is changing the world, the skills mismatch among the youth and what universities are doing to change the narrative.

Chapter Three covers the Dialogue programme, attendees and Dialogue review. Day One was opened by Professor Tinyiko Maluleke, Vice Chancellor and Principal, TUT and included speakers from the Department of Higher Education, Science and Technology, STATSA and others, and a panel on The Complex Web of Skills for the Future of Work. Day Two addressed the challenges brought about by 4IR with a deep dive into manufacturing, agriculture, finance, logistics and the just energy transition.

The event was attended by academia, government, industry, students, civil society and others, and included a hall of exhibitions and sponsors, which was a point of excitement for the attendees.

In Chapter Four, nine key insights are outlined: 1) The future of work is now; 2) Lifelong learning is the new normal; 3) Disruption is happening in the education sector; 4) Discovery skills are now paramount; 5) Smart machines will need smart brains; 6) A job is no longer a guarantee; 7) Leveraging digital platforms is the space for entrepreneurship; 8) Support is needed for youth career path development; and 9) Youth employment-centred policy formation is integral. In addition to these key insights, critical success factors are also explored in this chapter.

In the final chapter and conclusion by IFoW Special Director Tseliso Mohlomi, seven recommendations are suggested: 1) Enhance institutional frameworks to capture the Future of Work initiatives and engage with the ecosystem; 2) Build on institutionalised thinking towards better advocacy and lobbying in policy making; 3) Incorporate 21st Century critical thinking and an entrepreneurial mindset into future engagements; 4) Identify specific opportunities and open up direct dialogue for students; and 5) Create business and financing models for SMMEs and informal enterprises; 6) Develop monitoring and evaluation measure that are human-centric; and 7) Develop a roadmap towards Industry 4.0 adoption in South Africa.

The 2023 4IR Dialogue was an important step towards a future that embraces the possibilities of technology while staying true to the values of humanity and equity. TUT and IFoW embrace the journey ahead with strategic partners in building a brighter, more inclusive future for Africa.

Dr Vathiswa Papu-Zamxaka
Deputy Vice Chancellor, Research, Innovation & Engagement, TUT

"We will play our part to ensure that South Africa and Africa will write its own digital future"

Tseliso Mohlami, Senior Director
Institute for the Future of Work

ACRONYMS

3D	Three-dimensional
4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
CET	Community Education and Training
CITSIs	Centres, institutes, technology stations and incubators
DHET	Department of Higher Education and Training
DS4JI	Digital Skills for Jobs and Income
GDP	Gross Domestic Product
GIZ	German Agency for International Cooperation
GNI	Gross National Income
HDI	Human Development Index
HEI	Higher Education Institution
ICT	Information and Communication Technology
IFoW	Institute for the Future of Work
IoT	Internet of Things
MBA	Master of Business Administration
ML	Machine Learning
SAIS	South African Innovation Summit
SET	Secondary Education and Training
SETA	Sector Education and Training Authority
SMME	Small, Medium and Micro Enterprise
STEM	Science, Technology, Engineering and Mathematics
TUT	Tshwane University of Technology
TVET	Technical Vocational Education and Training
UNDP	United Nations Development Programme
VR	Virtual Reality

01 INTRODUCTION

ABOUT THE INSTITUTE FOR THE FUTURE OF WORK

LAUNCH

Launched in October 2021, the Tshwane University of Technology (TUT)'s Institute for the Future of Work (IFoW) is an ideation hub for global public-private collaboration and invention, designed to respond to the requirements of the rapidly changing world of work brought about by the Fourth Industrial Revolution (4IR).

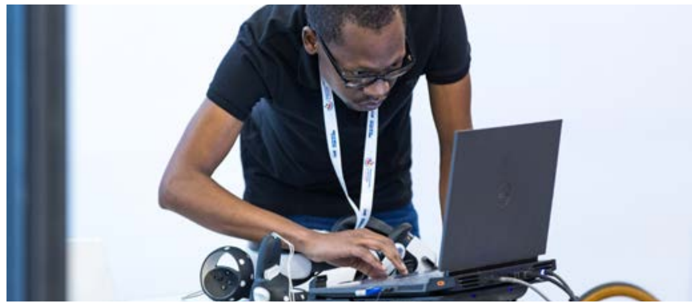
THE INSTITUTE FOR THE FUTURE OF WORK

VISION

- Engage in high-impact collaborative research on 4IR and the future of work.
- Innovate solutions for various societal challenges.
- Shape curricula development to address the contemporary reality of the digital economy.
- Lead the narrative on 4IR and the future of work.

The Institute closes the gap between the skills that universities provide and those needed in business and industry.

IFoW's research strategy complements TUT's faculty research endeavours, as well as those of its centres, institutes, technology stations and incubators (CITSIs), to position TUT at the forefront of scientific workable knowledge to solve real-life challenges in South Africa and on the continent.



The Institute strategically focuses on mutually beneficial partnerships with organisations in the public and private sectors, including leading institutions of higher learning, science councils, funding agencies, and local and multinational businesses.

As part of TUT's commitment to participate in the global economy, IFoW works with companies across sectors, including technology, financial services, healthcare and manufacturing, to create a robust community of advocates and partners.

IFoW houses four programmes – a Technology Hub, Smart Campus Platform, 4IR/Future of Work Research Projects, and the annual 4IR/Future of Work Dialogue.

WHAT IS 4IR?

The Fourth Industrial Revolution (4IR) is the current and developing environment in which disruptive technologies and trends such as the Internet of Things (IoT), robotics, blockchain, 5G, virtual reality (VR), machine learning (ML), artificial intelligence (AI) and other emergent technologies are changing the way modern people live and work.

The uptake of these exponential technologies has caused significant disruptions to both capital and labour, necessitating a re-evaluation of education and training.

With the advent of 4IR, challenges include the threat of unemployment for workers in favour of automation, an economy which does not increase job opportunities with growth, and an economy which benefits a few at the expense of many, leading to what is often called 'the new useless people', indicating those who are not skilled to meet future demands.

However, 4IR also provides many opportunities to address rising youth unemployment and underemployment.

Tshepiso Teffo
Technical Advisor, GIZ

TRANSFORMING SOUTH AFRICAN SOCIETY THROUGH TECHNOLOGY

South Africa is a highly unequal society in which the top 10% of learners account for 65% of national income, while the bottom 50% share of national income is 5.3%.

The country has a challenging conundrum – despite high unemployment rates, there are a number of jobs unfilled because skilled people cannot be found. Economic vitality depends on a skilled workforce – South Africa's potential GDP gain from a skilled workforce is at an estimated $27m.

According to human development indices, South Africa has the capacity for economic growth despite the triple challenge of slow growth, deep inequality, and high unemployment. Youth employment, in particular, is an accelerator to meet sustainable development goals. South Africa's youth unemployment is currently at 63.9% for those aged 15-24, and 42.1% for those aged 25-34. It is slightly lower for graduates. Graduates aged 15-24 have a 32.6% unemployment rate and 22.4% for those aged 25-34.

There is a demand for digital skills, but the labour market is characterised by a skills shortage, both in digital roles, such as software developers, and digitally enabled roles, such as hybrid teaching. 57% of South African enterprises are unable to fill specialist Information and Communication Technology (ICT) roles, with 44% of organisations unable to find staff with the required digital skills.

Higher education needs to adapt to prepare individuals and society for the challenges and opportunities brought about by 4IR. However, the pace of technological evolution may outstrip the number of individuals with the necessary skills, contributing to skills deficiencies in the labour market.

This skills gap is exacerbated by limited access to technology leading to limited or no digital literacy. This disparity creates a lag between those digitally equipped and those without, compounded by the current brain drain, with skilled people emigrating and limited knowledge transfer.

Academic institutions need to bridge this gap between their programmes and industry to ensure work-ready students who have the required digital literacy to become marketable.

In a market characterised by 32.9% overall unemployment, and the threat of increased automation brought about by the 4IR, thinking around jobs and employability needs to shift to embrace the flux of future work.

OBJECTIVES OF THE 2ND ANNUAL FUTURE OF WORK 4IR DIALOGUE 2023

The Annual Future of Work 4IR Dialogue is a platform to raise critical questions concerning the changing dynamics of economies, technologies, and industries in response to 4IR, from a multiplicity of perspectives, including industry, government and academia.

The vision is to steer South Africa towards a work-ready future, a horizon where every stakeholder is empowered with a focus on enhancing human productive capacity and ensuring inclusive economic growth.

Over 500 participants joined IFoW and the Dialogue partners in engaging on a series of intricate policy issues, practical interventions and in crafting strategies tailor-made to South Africa's unique context, fostering an ecosystem where new economic activities can take root and flourish.

The key objectives for the 2nd Annual Future of Work 4IR Dialogue: Collaboration for Inclusive Economic Growth are:

1 TANGIBLE SOLUTIONS-ORIENTED

To be part of vibrant sessions that spotlight multi-sectoral solutions, fostering a roadmap towards future economies and industries that are sustainable and inclusive.

2 INNOVATION SHOWCASING

To discover the technologies and innovations that are set to redefine industry standards, offering a beacon of hope and a plethora of opportunities for the previously disadvantaged.

3 COLLABORATIONS AND PARTNERSHIPS

To forge valuable connections that span across sectors and industries. To engage in sessions that foster co-creation and implementation of interventions that resonate across industries and institutions.

DIALOGUE

Buntu Majaja, CEO
South African
Innovation Summit

The ultimate goal of the Dialogue is to create a dynamic confluence where innovation is the language and technology the canvas.

Together the participants, partners and IFoW will create a future that is progressive, innovative and sustainable.

02
THE FUTURE OF WORK AND YOUTH

The Fourth Industrial Revolution (4IR) is changing the world of work in a profound manner. It affects current jobs and those yet to come. This calls on the academia to train youth in a dynamic way and ready them to shape the world of work.

HOW TECH IS CHANGING THE WORLD

Technology is changing the world of work in a fundamental and rapid fashion.

The key drivers of technology change include artificial intelligence (AI), virtual reality (VR), machine learning (ML), block chain, the internet of things (IoT), 5G, robotics and other technologies. According to the World Economic Forum's Future of Jobs study (2022), the impact of most technologies on jobs is expected to be a net positive over the next five years.

Big data analytics, climate change and environmental management technologies, and encryption and cybersecurity are expected to be the biggest drivers of job growth.

Moreover, agriculture technologies, digital platforms and apps, e-commerce and digital trade, and AI are all expected to result in significant labour market disruption, with substantial proportions of companies forecasting job displacement in their organisations, offset by job growth elsewhere to result in a net positive.

As Professor Tinyiko Maluleke, Vice Chancellor and Principal, Tshwane University of Technology (TUT), points out emerging technologies should be seen as opportunities not threats, reshaping our work. This requires rapid re-skilling of current and future workforces.

4IR DOMAINS

Software Development	3D Printing	Cyber Security and Data Sciences
Cloud Computing	Drone Piloting	Digital Content Production

Source: GIZ (2023), The Digital Skills for Jobs and Income

While 4IR was expected to change jobs that are largely routine requiring less human intervention, anecdotal evidence indicates that even non-routine tasks such as reasoning, communicating and coordinating face increasing prospects of automation due to AI, which is a key driver of potential algorithmic displacement.

Changes to the workplace due to 4IR not only affect the nature of jobs, but also the way work is carried out.

It is therefore important to adequately prepare current and future workforces to find new ways of working, with a bias focus on digital skills.

> **"It is important to acknowledge that not only jobs are changing, but the nature of work too. Workers can work from anywhere. They do not have to be physically present at the office to perform their duties. At the same time, new skills are emerging which require people to enable this technological innovation."**

Professor Tinyiko Maluleke
Vice Chancellor and Principal
Tshwane University of Technology

THE SKILLS MISMATCH AMONG THE YOUTH

4IR provides many opportunities to address rising youth unemployment and underemployment.

According to Semakaleng Thulare of Stats SA, 57% of enterprises and 44% of organisations in South Africa find it difficult to fill Information and Communication Technology (ICT) specialist roles. Furthermore, employment stats indicate that in South Africa employment gains are largely from construction, trade and community and social services with technology-related services jointly contributing a significantly small percentage of the digitally skilled workforce needed in the 4IR era.

TOP 5 SKILLS THAT COMPANIES NEED MOST

2018	2020	2023
Cloud Computing	Blockchain	Statistical Analysis
Statistical Analysis	Cloud Computing	Sales
Middleware & Integration	Analytical Reasoning	Data Mining
Web Architecture	Artificial Intelligence	Cloud Computing
UX Design	UX Design	Artificial Intelligence

Source: Petrone (2018) The Skills Companies Need Most in 2018; Van Nuys (2019). New LinkedIn Research: Upskill Your Employees with the Skills Companies Need Most in 2020; LinkedIn (2023). LinkedIn 2023 Most In-Demand Skills: Learn the skills companies need most.

Emerging tech trends such as AI, ML and Automation innovations across industries generate increasing demand for digital literacy which can help absorption rate of youth into the labour market.

There are promising trends in the literacy rates of the South African population.

There are many barriers to optimal participation by young people in the technology sector. The biggest among them is the high levels of ICT literacy.

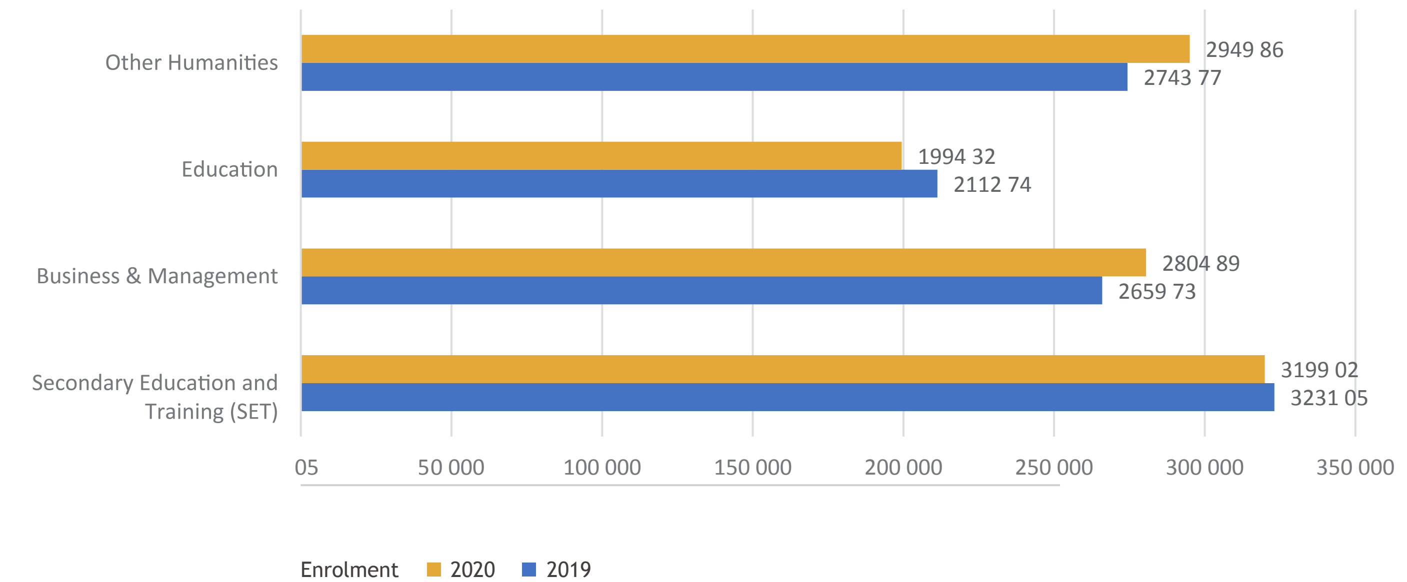
There is a huge mismatch between the skillsets possessed by youth and the technology-driven industry needs. Youth are lacking in both technical and soft skills... attitude change is very critical for youth to seize opportunities presented by technology.

Tseliso Mohlomi
Senior Director
Institute for the Future of Work

Tseliso Mohlomi's observation underscores the critical nature of skills mismatch between skills demand and supply. To effectively address youth skills mismatch, it is important to include a combination of labour market-relevant digital skills, soft skills, mentorship, and workplace and project-based learning opportunities for employment or gig economy opportunities as the GIZ DS4JI project illustrates.

Promising trends are that the South African Post-School Education System is beginning to turn the tide with regard to producing learners with Science, Technology, Engineering and Mathematics (STEM), a point emphasised by Christopher Mvalo, Deputy Director General at the Department of Higher Education and Training. In 2020, the system enrolled slightly higher number of learners in these fields relative to previous years.

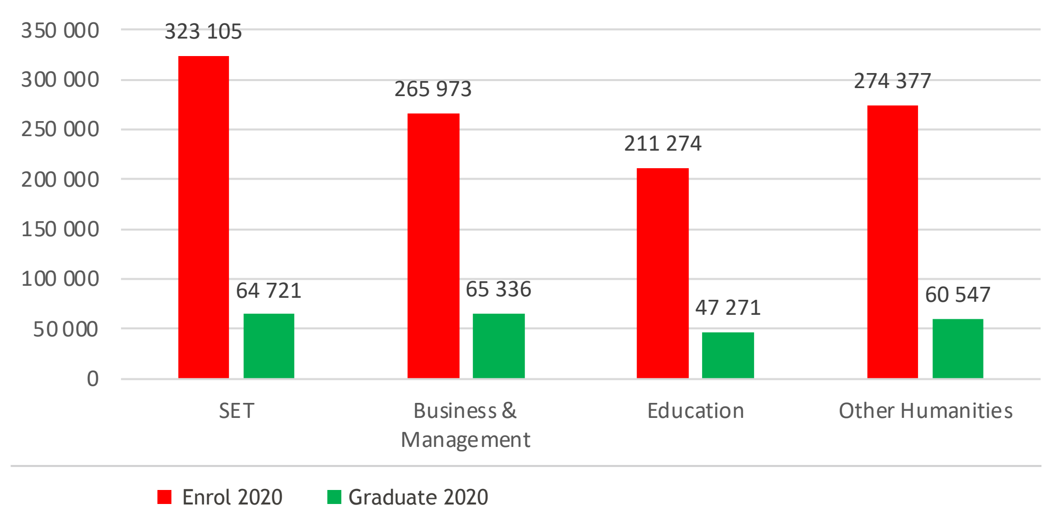
Higher Education Institution (HEI) Enrolment, 2019-2020



Source: Department of Higher Education (2022), 2020 Statistics on Post-School Education and Training in South Africa, 2022

The downside is far fewer students complete their studies the following figure illustrates. This implies that the supply pipeline of SET graduates is lower than the industry requires, thereby requiring innovative strategies and solutions to fill gaps and prepare youth to take advantage of opportunities presented by 4IR. This is where short skills programmes like those outlined above become more relevant than ever.

Enrolment vs Completion Rates



Source: Department of Higher Education (2022) 2020 Statistics on Post-School Education and Training in South Africa

While technical skills are important in the 4IR era, the future workforce will need to possess multidisciplinary skills, with a combination of both digital and soft skills. This is not the case at the moment as the training is mainly unidisciplinary.

As the Future of Jobs Survey report indicates, analytical thinking and creative thinking remain the most important skills for workers in 2023.

Analytical thinking is considered a core skill by more companies than any other skill and constitutes, on average, 9% of the core skills reported by companies.

Creative thinking, another cognitive skill, ranks second, ahead of three self-efficacy skills – resilience, flexibility and agility; motivation and self-awareness; and curiosity and lifelong learning – in recognition of the importance of workers ability to adapt to disrupted workplaces.

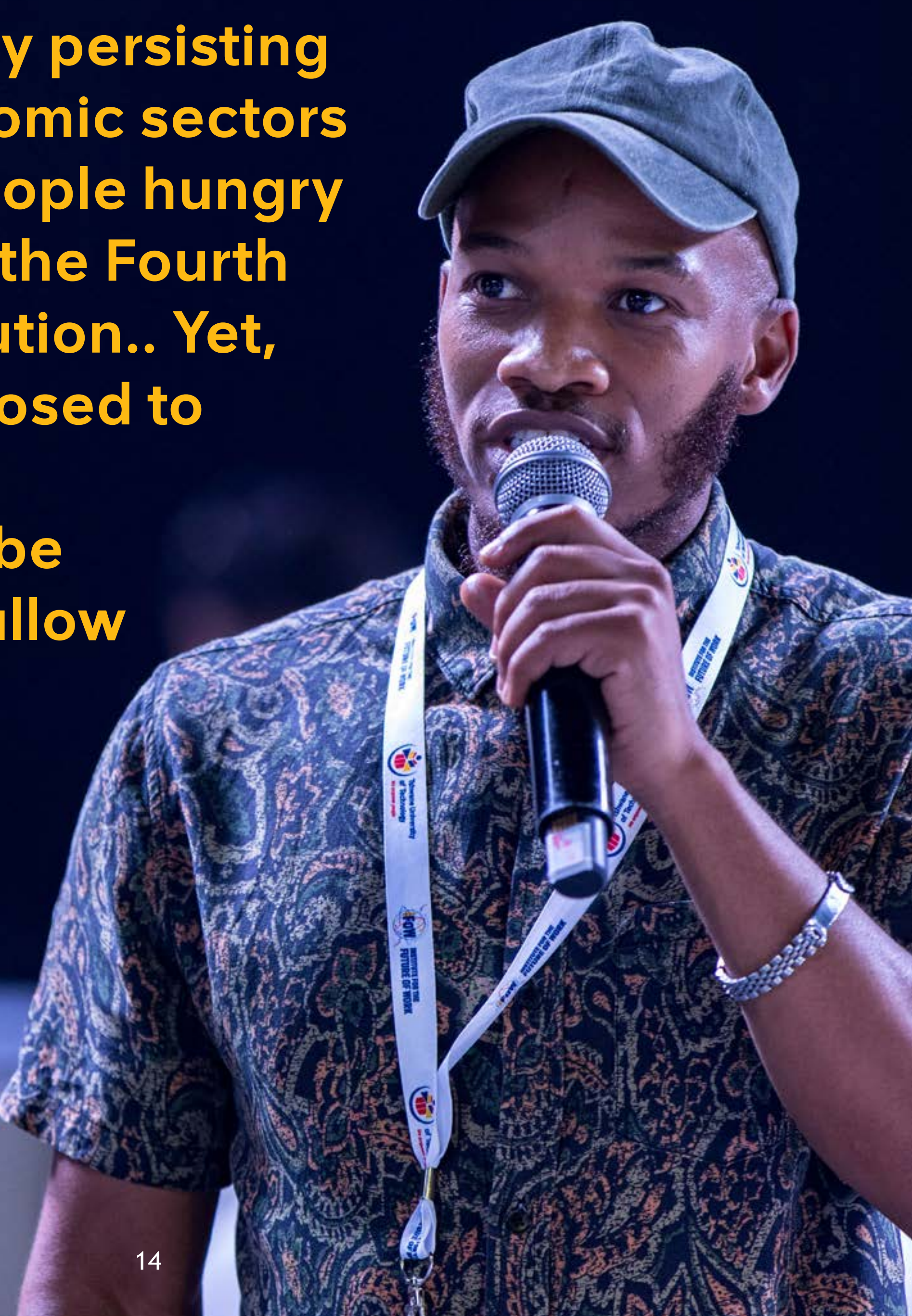
Dependability and attention to detail ranks sixth, behind technological literacy.

HOW YOUNG PEOPLE SEE THE SITUATION

Youth is a critical pipeline of labour market supply.

With current rapid changes in the world of work due to technological innovations and rapid evolution, it is important that they are adequately prepared to function effectively in the labour market. This is particularly important because youth constitute the bulk of the population of sub-Saharan Africa and bear the harshest brunt of unemployment in South Africa.

The challenge faced by youth is exposure and access to opportunities brought about by technology. This is in part due to lack of integration, and collaboration, within the industry and various role players such as business, academia and government. Unéné Gregory, Project Manager for Public-Private Partnership at IFoW explained this challenge.



"The silo mentality persisting across the economic sectors leaves young people hungry to be nvolved in the Fourth Industrial Revolution.. Yet, they are not exposed to opportunities. Industry should be innovative and allow young people to participate in the industry".

Dr Unéné Gregory
Project Manager
Public-Private Partnership
TUT

A focus group discussion session with TUT students revealed the frustration young people experience in the workplace. Students indicated that the industry is not as welcoming of young people and does not provide as much exposure as they would like. One student suggested that interns are allocated to tasks such as making photocopies, serving tea and running errands instead of being exposed to the actual work being carried out within host organisations.

PATHWAYS FOR YOUTH TO ENTER THE DIGITAL WORKFORCE

Basic & Intermediate Digital Skills

In order to tackle digital divide for youth in rural areas and townships

Tech4Girls e-Mentorship

Work readiness and mentorship components aim to bridge the gender gap in the tech industry

Global Business Services

Ranging of skills in international business operations, from customer support, MS cloud systems to data analysis

Source: GIZ (2023) The Digital Skills for Jobs and Income

The industry needs to be accommodating to youth and provide opportunities to young people, as Dr Unéné Gregory advises. Most importantly, available opportunities should be inclusive in nature, addressing rural-urban divides, marginalisation of female youth and people with disabilities.

For effective absorption of youth into the high-tech world of work, the German Agency for International Cooperation (GIZ)'s Digital Skills for Jobs and Income (DS4JI) project advocates for the following 4IR employment promotion challenges must be addressed:

Digital Literacy Gap
Bridging the digital divide is essential as tech skills become increasingly vital.

Lack of Awareness
Youth awareness of emerging career paths is crucial.

Matching Skills to Emerging Careers
Aligning skills with emerging careers is a critical challenge.

Rapid Tech Advancements
Continuous upskilling and reskilling is imperative.

Accessibility and Inclusivity
Ensuring equal access to skills development and career opportunities.

Balancing Traditional and 4IR Skills
Striking the right balance between old and new skills can be complex.

Career Path Support
Provision of support for youth in transition phases between education, further training and (self) employment is important, especially in the digital economy.

WHAT UNIVERSITIES ARE DOING TO CHANGE THE NARRATIVE

The mismatch between skills demand and supply illustrates the lack of alignment between the industry and academia. The logical conclusion is that universities and colleges do not produce graduates with relevant skills for the 4IR. There is a need for constructive conversations between these two sectors to address this problem.

This is concerning, considering that South Africa has a relatively high number of institutions of higher learning, both public and private.

In 2020, there were 369 institutions of higher learning in South Africa, with 26 public HEI, 132 private HEIs, 50 Technical Vocational Education and Training (TVET) colleges, 126 registered private colleges and 9 Community Education and Training (CET) colleges in South Africa in 2020. More than 2 million learners enrolled between them during this period.

As illustrated, there is an incremental increase in the number of students taking up STEM courses. This bodes well for the future generations of technology era. What remain a primary concern is the relevance of these graduates for the 4IR skills needs.

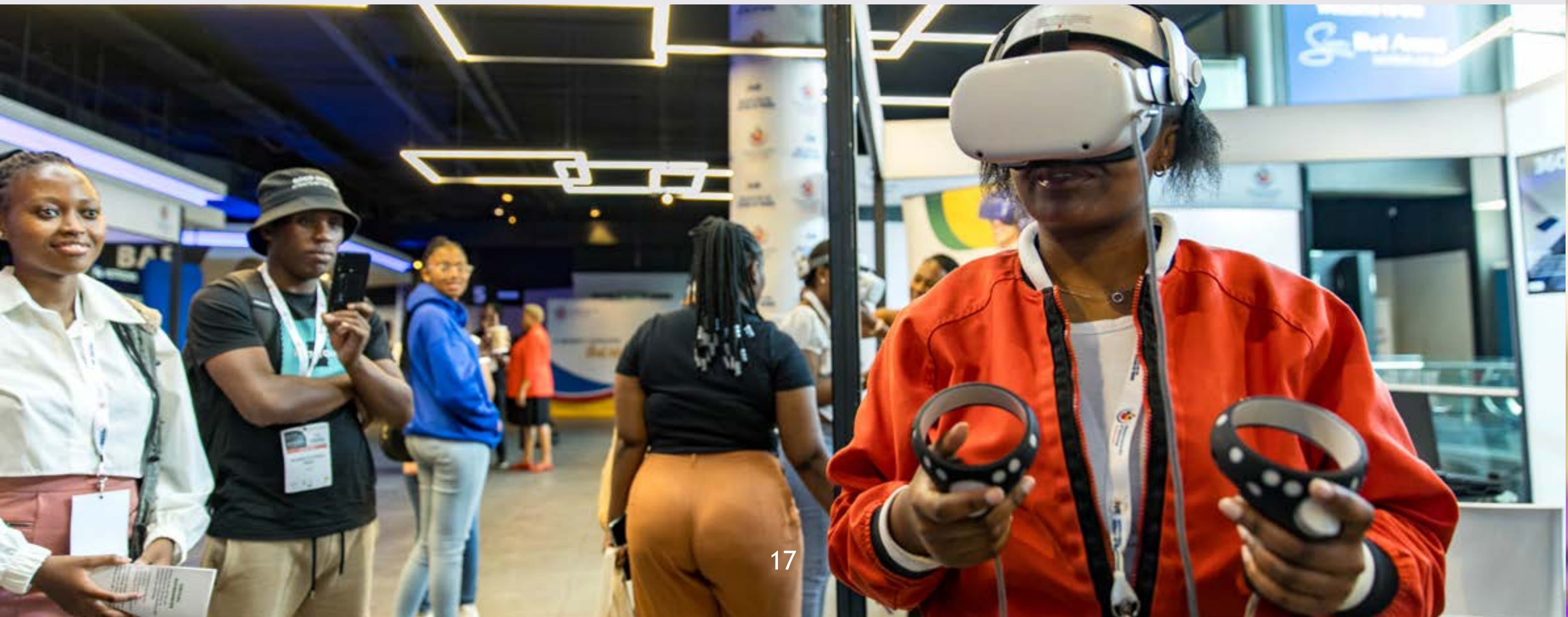
The IFoW Dialogue was unequivocally about the need for closer collaboration between the industry and academia.

This was the reverberating theme from most speakers including the TUT Vice Chancellor, Deputy Vice-Chancellor for Innovation and Research and the Deputy Director General from the Department of Higher Education and Training (DHET).

It is against this background that the IFoW conceptualised the Annual 4IR/Future of Work Dialogue which aims to bring together various role players around the table to discuss the impact of 4IR on the world of work and jobs and come up with innovative solutions.

However, the limited participation of the academia in this dialogue is the clearest indicator of the chasm between the world of work and the world of learning.

This calls for deliberate efforts to bring universities on board given their centrality in bridging the gap between education and the economy.



To what extent are universities, Technical Vocational Education and Training (TVET) colleges, and Sector Education & Training Authorities (SETAs) producing graduates meeting the needs and requirements of high-tech-driven industry? A proxy indicator of the mismatch between skills demand and supply is the high rate of unemployment among graduates – colloquially referred to as "jobless graduates".

03

ABOUT THE 2ND ANNUAL IFoW FUTURE OF WORK 4IR DIALOGUE 2023

The driving question that led to the Dialogue's formation was: What should higher education institutions, in partnership with government, business and the community, do to develop the required skills for 4IR and the future of work?

Chris Cooter, High Commissioner for Canada in South Africa

HOW THE DIALOGUE CAME INTO BEING

In 2020, Tshwane University of Technology (TUT) hosted a dialogue on 4IR and the Future of Work, which brought together academics, government and industry leaders, producing invaluable insights on how universities of technology can adjust to better prepare students to find and create opportunities for economic growth.

This Dialogue sparked the creation of IFoW, and the Future of Work 4IR Dialogue has become an annual conversation to drive critical thinking about 4IR and the future of work.

The vision for the Dialogue is to create a "work-ready future" for students.

Aligned with IFoW's focus as an ideation hub for global public-private collaboration and invention, the two-day dialogue brings together industry leaders, academic thought leaders, 4IR specialists, policy makers, government officials, students, and civil society to develop solutions and facilitate an environment for inclusive economic growth.

Discussions also include the required skill sets for the future, how current skill sets may be of use in the future, and how this new trajectory will affect economic growth in both South Africa and Africa.

Following a successful event in 2022, the 2nd Future of Work Dialogue, with the theme of Collaboration for Inclusive Economic Growth, delved into the complexities and opportunities presented by 4IR for the future of work, and solutions to address the South African skills conundrum in the context of Industry 4.0 readiness.

Lefatshe Moagi, Lecturer in International Relations, UNISA

STRATEGIC PARTNERSHIPS

To co-ordinate successful Dialogue events, the IFoW collaborates with both TUT and the South African Innovation Summit (SAIS).

TUT is the biggest contact university in South Africa, with over 65 000 students, mostly from previously disadvantaged communities. This means that the basic education students received might not have prepared them for university, and what they receive from the university may not necessarily prepare them for work.

The Dialogue aligns with TUT's mandate to ensure that their students and graduates are appropriately skilled and prepared for the future of work.

For TUT, the Dialogue is an opportunity to critically engage with the positives and challenges of 4IR and how it affects the education system to close this skills gap and adapt curricula accordingly.

SAIS's broader scope of support to the Dialogue includes the overall end-to-end project management and governance, in accordance with best practice principles, and the event logistic management: securing suitable sponsors and managing these relationships; devising and executing a comprehensive digital marketing campaign; recruiting and co-ordinating guest speakers; recruiting and co-ordinating exhibitors; selecting and verifying preferred suppliers and vendors; and pre-event and post-event logistics, including delegate management.

SAIS also leverages their platforms and networks to expand the Dialogue's reach and offers the IFoW team additional support over the Dialogue's planning and execution.

Dr Dana Gampel, Corporate Specialist in the Just Energy Transition Office, Eskom and Professor Josef Gochermann, Associate professor, Marketing & Technology Management, Osnabrueck University of Applied Sciences, Germany

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PROGRAMME, ATTENDEES AND INPUTS

Programme

The Dialogue ran on Wednesday 18 and Thursday 19 October from 09h00 - 16h30 at the SunBet Arena,Time Square Casino, Menlyn, Pretoria. Each session began with an opening ceremony performed by the talented TUT choir.

The programme began with an opening address from Professor Tinyiko Maluleke, Vice-Chancellor and Principal of TUT on the subject of buildingstronger partnerships between industry and academia to produce future ready graduates.

Professor Maluleke was followed by the keynote speaker, Zukile Mvalo, Deputy Director General, Department of Higher Education, Science and Technology who delivered an address titled Higher Education 4.0: Bridging the gap between academia and industry in the age of innovation.

Day One's agenda followed a series of spotlight addresses and fireside discussions, as well as a Q&A with the audience.

The themes of Day One's spotlight addresses centred around the South African National Human Development Report 2022 and it's implications for South African youth employability, statistical insights into South Africa's Industry 4.0, generative AI, digital skill priorities, the innovation mindset, and strategies to bridge the digital skills gap.

The topics for fireside discussion included The Complex Web of Skills for the Future of Work and Graduates as Catalysts: Academic Empowerment for Economic Transformation.

Day Two's agenda followed the same pattern of spotlight addresses and panel discussions, with an audience Q&A.

The themes of Day Two's spotlight addresses focused on the challenges and opportunities brought about by 4IR, a deep dive into the manufacturing, agriculture, finance and logistics industries as well as a just energy transition in the context of climate change.

PANEL DISCUSSION

Deep dive into manufacturing, agriculture, finance, logistics and just energy transition.

Crafting tomorrow's work

Manufacturing in the era of 4IR

Agriculture 4.0

Innovations, resilience and the evolution of agribusiness in the 21st century

Future of finance

Bridging the digital divide – technological advancements, global shifts and economic challenges

Energy transition

The just energy transition and the future of work

Future of transport and logistics

Revolutionising the route – tech-driven logistics for inclusive prosperity in South Africa and economic challenge

x2

Both days closed with a reflection on the day's proceedings by Buntu Majaja, CEO, SAIS.

Attendees

Number of delegates

In total, 842 delegates signed up for the event with 376 attending. A further 129 attendees joined the event as walk-ins, giving a final total of 501 delegates who attended the dialogue.

TUT students

122 delegates were from TUT, of whom 18 identified as students. Students from University of Pretoria, Nelson Mandela University, UNISA, University of the Witwatersrand, and University of Johannesburg also attended. Other higher education institutions represented included Richfield Graduate Institute of Technology, Signa Academy, Motheo TVET College, WeThinkCode, and the Tshwane Institute for Continuing Education. Research institutes included the Institute for Security Studies and the Council for Scientific and Industrial Research.

Software developers

26 delegates identified as software developers. Technology-based hubs represented included the Informatics Community Engagement Project, HKS-Africa, TakeNote IT, Rail Manufacturing Centre for Entrepreneurship Rapid Incubator, Africa Beyond 4IR, GirlsCode, and Mindworx. **Tech company delegates** included AfriPAV, Alstom, Cisco Systems, and Mustek.

Industry delegates

Members from various industries included delegates from Ford SA, Ernst&Young, Investec, Meledi Holdings, iX Engineers, Microsoft, UberSA and African Bank, with industry associations including Business Unity South Africa and the Banking Association of South Africa.

Government

The government was represented by delegates from the Department of Education, Gauteng Department of Economic Development, Department of Public Service and Administration, and the Department of Science and Innovation. The Sector Education and Training Authorities (SETAs) were represented by FoodBev SETA, W&R SETA, and the Services SETA.

Development agencies

Delegates from development agencies included the Industrial Development Corporation and the United Nations Development Programme.

DIALOGUE REVIEW

Day One spoke to the future that is already here and asked how ready South Africa is for 4IR revolution. Semakaleng Thulare, Chief Director, Business Modernisation, Statistics South Africa indicated there were positive signs, such as the increased number of people older than 20 with post-school education.

There are a number of challenges to developing work-ready students for both digital roles and digitally enabled roles, as highlighted by the Deputy Director General, Department of Higher Education, Zukile Myalo, the lack of access to technology, skills emigration, lack of knowledge transfer, a lack of substantial hands-on training.

The landscape of work has changed. Education has to change too. A focus on transferable soft skills that are multi-disciplinary in nature offers a way forward.

There is still a need to focus on STEM subjects, but all disciplines will find themselves needing to respond to the concerns raised by increased digitalisation.

44% of South African organisations struggle to find staff with the required digital skills.

The opportunity is to shift mindsets. The best advice for the youth is to be open and for institutions to develop the 21st century, cross-cutting skills needed. New ways of thinking need to emerge, focused on areas of creativity, critical thinking, problem solving, entrepreneurship, tools for working in ICT, communication and collaboration, alongside life skills to be able to adapt to a changing world of work and be future-ready.

GETTING A DEGREE AND FINDING A JOB

Work is no longer about getting a degree and finding a job.

Work in 2023 means leveraging opportunity, optimising skills and responding to the work environment. Either reinvent yourself or reinvent the future, as Professor Herman Singh, CEO, Future Advisory, suggested. Resilience is key.

Some of the potential solutions put forward include:

Collaboration

Sustained, meaningful partnership between government, academia and industry to **create work-integrated curricula** as a **starting point.**

Private sector partnership

To address **skills gaps** with programmes such as **Microsoft Learn,** and **raising funding** for **bigger investment** in advanced technologies, similar to other countries.

Focus on upskilling to remain relevant

“Everyone will need **101 days** of learning to continue to **be relevant,**” as Professor Bhekisipho Twala, Deputy Vice-Chancellor (Digital Transformation) at TUT, suggested. The idea of continuous learning, and investing in oneself to make this happen, are key elements.

According to Keoikantse Mapungwa, Digital Transformation Strategist, IDC, digital advancement will continue in the future. Over the past fifty years, it has increased exponentially and changed how people work. The future isn’t predictable, but humans can be responsive to it.

What is needed are creative thinkers, innovators, inventors — those who question everything, observe everything, network, experiment, try something new.

Day Two dived deep into how specific industries are changing in response to 4IR, and then took a step back to paint the broader global context with regard to the just energy transition.

The automotive industry is changing from a 20,000-component chain to a 2,000-component model with the advent of electric cars. Humans work alongside machines, but there are new gaps emerging within these processes, which can define what the future of work in manufacturing will look like.

With mobile penetration and the increased use of smartphones, fintech solutions are charging ahead, offering multiple forms of payment, online transactions, access to global markets and the rise of cryptocurrencies. Will cash become obsolete? Not as yet, but according to Letsholo Mojanaga, Inclusive Growth and SDG Finance Advisor, United Nations Development Programme (UNDP), it is being used less and less. Infrastructure development and access are crucial to fintech development.

Is the insurance industry still a viable career path? Lethabo Nelulheni, Training Specialist, King Price, argued that it depends on customer needs, and how businesses can help customers. There will always be a need to insure valuables, but beyond that people working in the insurance industry need increasingly to understand the communities they serve, and use technology for product development as well as for customer experience.

The agriculture industry is changing with pace in response to climate change, land availability and food security issues.

Despite these changes, however, there’s a lack of interest in agriculture among the youth. Dr Ayodele Odusola, Resident Representative and Director, Africa Finance Sector, UNDP, noted that food security did not seem as attractive a challenge as self-driving cars and yet it is a crucial global issue.

Sowing the seeds of growth, the agricultural industry offers opportunities through the value chain. Companies are developing the farms of the future. Food security is a viable career path. Young people need to participate in sustainable farming practices, and in familiarising themselves with agricultural practices that could feed not only local and national food needs, but also global ones.

Solutions need to consider local, national, regional, and global solutions. The global village is more of a reality than ever, particularly in the face of the impact of climate change. Issues of economic inclusion, environmental sustainability and prioritising access to skills, knowledge and resources are all challenges that can be addressed with emergent technologies.

Work is being done to bridge the gap between higher education and industry, to create work-ready people, including inclusive hiring, non-formal training, and stakeholder engagement, as well as formal training.

Rather than focussing on jobs, Tshepiso Teffo, Digital Skills Technical Advisor, GIZ, spoke to the need to focus on career path support, matching skills to needs, with broad collaboration and involvement from industry in defining these needs.

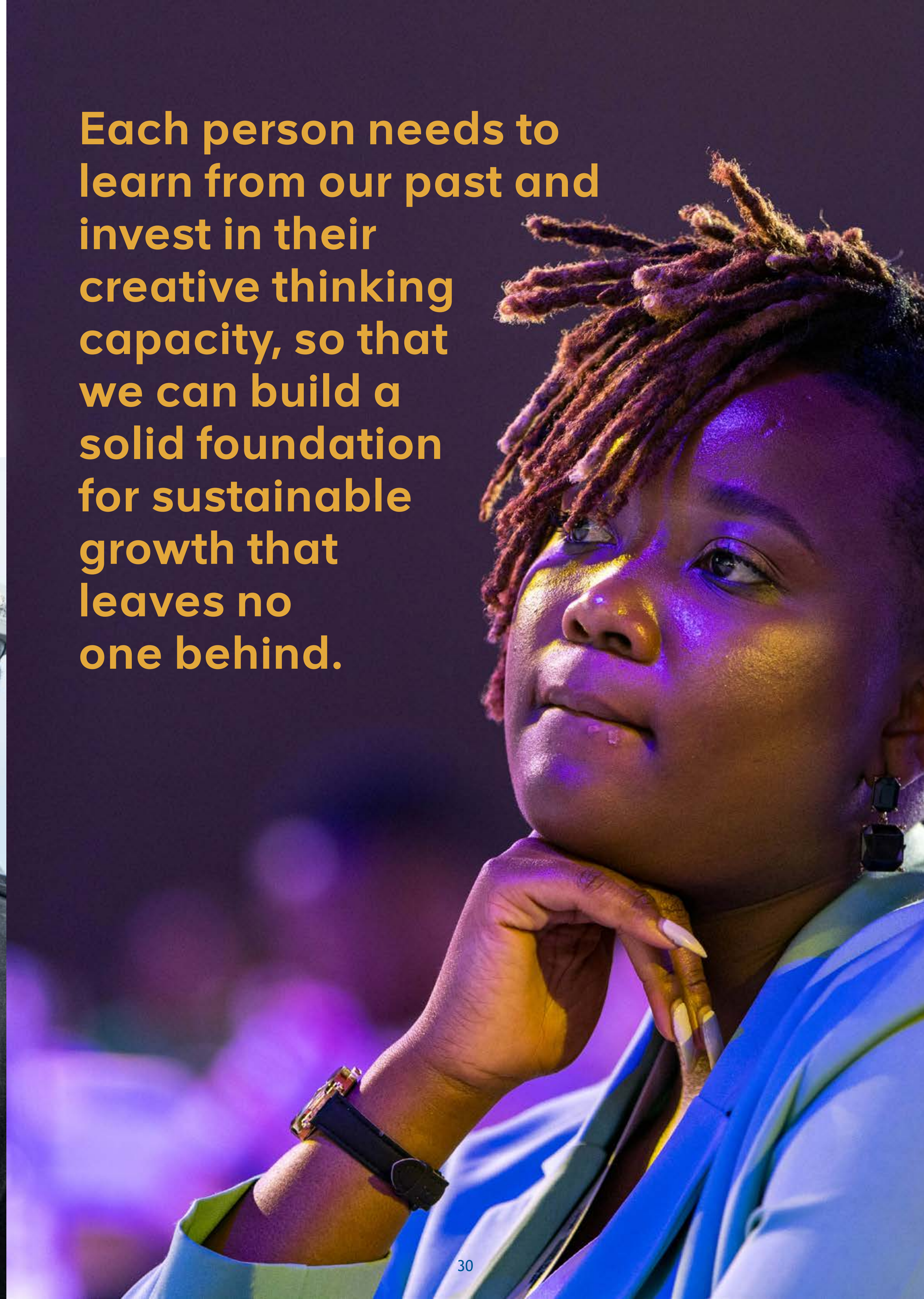
The opportunity to create one's own job and define one's own career path exists for entrepreneurs. Entrepreneurs need to solve a problem.

There are many problems out there, and entrepreneurs are in the business of solving them through innovation.

Collaboration and co-operation will also contribute to providing solutions, as well as increased investment in science and technology, research, and development.

Everyone is a creator and consumer in this brave new world.

As Ofentse Madisha, Head of Public Policy, Uber South Africa, predicted, **one in 15 unemployed people** will earn a living from a tech platform.



Each person needs to learn from our past and invest in their creative thinking capacity, so that we can build a solid foundation for sustainable growth that leaves no one behind.

04

KEY INSIGHTS & CRITICAL SUCCESS FACTORS FOR THE FUTURE

We have to prepare students to shape the future by helping to define what jobs will be important or necessary.

KEY INSIGHTS

Nine key insights emerged from the 2023 Dialogue:

1 The future of work is now	2 Lifelong learning is the new normal	3 Disruption is happening in the education sector
4 Discovery skills are now paramount	5 Smart machines will need smart brains	6 A job is no longer a guarantee
7 Leveraging digital platforms is the space for entrepreneurship	8 Support is needed for youth career path development	9 Youth employment-centred policy formation is integral

1 The future of work is now

The Fourth Industrial Revolution (4IR) has already impacted on the current workplace with increased digital connectivity, augmented reality, such as the use of three-dimensional (3D) programming to provide, for example, visual walk-throughs of construction sites, and the use of generative artificial intelligence (AI) such as ChatGPT to write scripts and reports, among many other examples.

Generative AI, particularly, has resulted in a “democratisation of skills.” Anyone who can type can direct the AI to produce art, songs, or even pieces of code.

Influencers earn money from digital platforms as content generators, and communication technology means we can hold meetings with our colleagues around the globe.

Industries with fast-paced technological innovation include agriculture, in areas such as maximising land, controlling climate, and efficient farm-to-table logistics; education, with online learning that opens access to programmes from global leading institutions; and healthcare with various online health services and advanced in-theatre robotics.

The future of work is already here.

Instead of predicting what future jobs will be, the focus shifts to preparing students to be agile, responsive, and resilient to emerging technologies and a changing global landscape, particularly with the nascence of the green economy.

2 Lifelong learning is the new normal

"Everyone will need 101 days of learning a year to continue to be relevant."

Professor Bhekisipho Twala, Deputy Vice-Chancellor, Digital Transformation Tshwane University of Technology (TUT)

Students have to be nimble and responsive to an environment in relentless flux. There is no such thing as "finish and klaar" results.

Future readiness means to be open with enough cross-cutting skills to adapt and thrive – the future is not a specific static destination. Today's students can expect a multiplicity of career opportunities over the course of their working life.

Upskilling and reskilling will become essential in order to remain relevant. The rate of internal change will need to match the rate of external change to avoid being left behind. Technology has opened up opportunities, including job mobility. Students need to be ready to learn new things and open themselves up to international possibilities, thinking global as well as local.

3 Disruption is happening in the education system

"No one left behind."

Tshepiso Teffo, Senior Director, Institute for the Future of Work (IFoW)

In South Africa there has been a noteworthy increase in those completing secondary education. However, the pandemic, social forces, changing labour market needs, and technology have converged to disrupt the status quo in the education sector.

The pandemic highlighted issues entrenched in the education system, most noticeably the digital divide as schools closed and teaching shifted to an online classroom.

South Africa has over 50% mobile internet penetration, with only 66% of those with a mobile device having access to the internet.

97% of educators reported seeing learning loss as a result of the pandemic, and 57% of educators think students are behind by more than three months in their social-emotional progress.

Teaching for 21st century skills has never been more critical and it starts at the primary school level.

The landscape of learning has changed and education has to change accordingly.

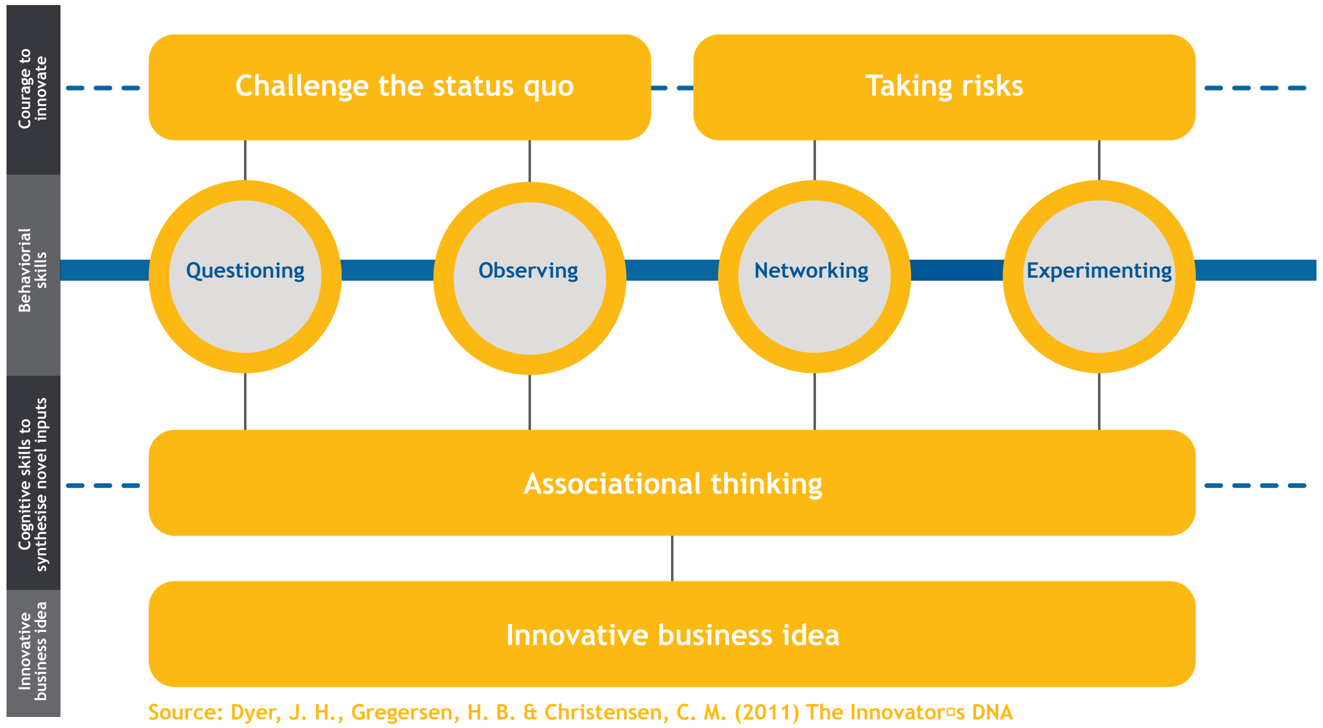
Most schools and universities are not state-of-the-art, and hands on learning is necessary to bridge the skills gaps.

4 Discovery skills are now paramount

Behavioural skills such as questioning, observing, networking, associating, and experimenting are paramount.

But these skills need to be incorporated into the curriculum from Grade 1, together with a base understanding of Science, Technology, Engineering and Mathematics (STEM) subjects.

There is a need to revisit the curriculum in secondary education to consider what is missing and introduce those 21st century skill components throughout.



Source: Dyer, J. H., Gregersen, H. B. & Christensen, C. M. (2011) The Innovator's DNA

5 Smart machines will need smart brains

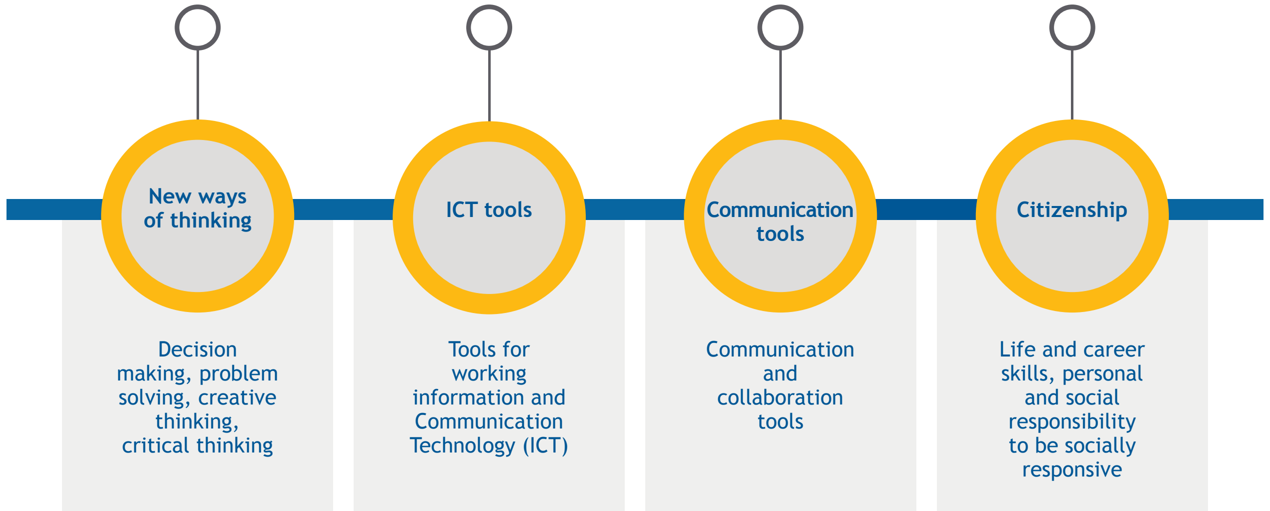
Professor Bhekisipho Twala, Deputy Vice-Chancellor (Digital Transformation), Tshwane University of Technology "TUT", indicated that having smart machines is not enough – for the future of work needs smart brains to manage them.

Harnessing the 3Cs – critical thinking, creativity and collaboration – for future-proof graduates is critical.

Technology is the horsepower, but humans are the owners of cognitive power. Humans will continue to work alongside machines, rather than be replaced entirely by them.

Investment in 21st century skills, hard and soft skills, will ready students to be resilient to this change, to take advantage of the future of work, and be "future-proof."

These skills include:



Transferable skills have never been more critical.

There are opportunities in those soft skills where machines cannot reach.

6 A job is no longer a guarantee

The convention is to get a degree, or other qualification, and then wait for a job. But students need to be prepared for the future of work versus the future of jobs. The concept of one job for life has fallen away in favour of multiple careers over one lifetime. Jobs as we know them are changing – organisations are looking for workers who add and drive value in a business.

The current challenge for employers is the rate at which employees change jobs, sometimes leaving them with a negative return on investment, considering the costs of upskilling and reskilling.

Work seekers will need to create jobs based on the value they bring for organisations and be tech-savvy in the use of business tools, regardless of the sector they work in.

> **"The future of jobs is the future of the broke."**
>
> Professor Herman Singh, CEO, Future Advisory

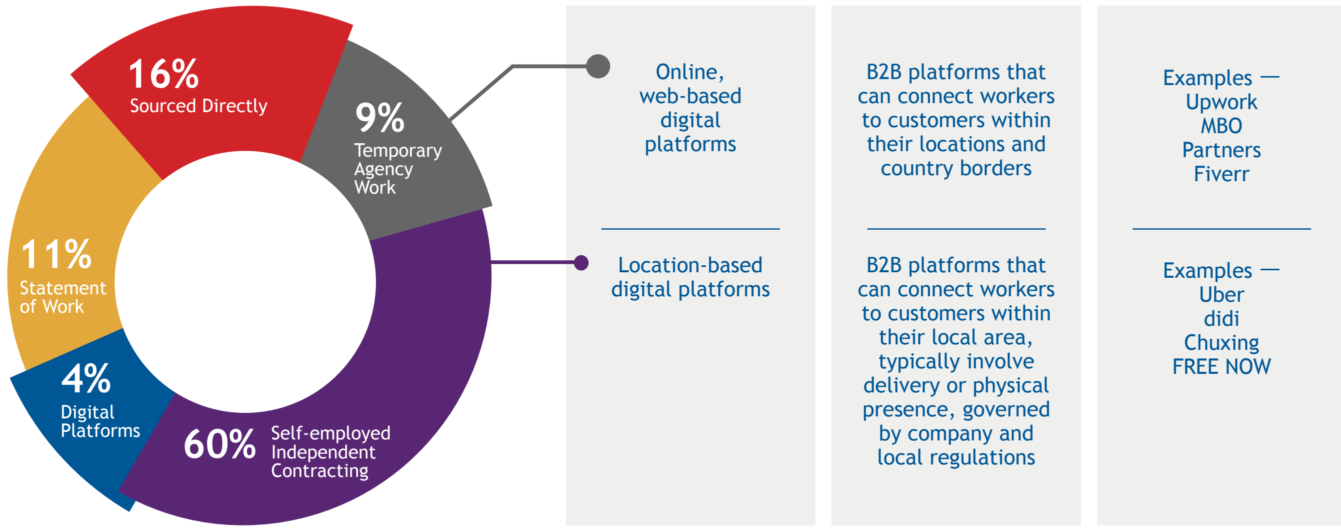
The world is moving away from certificates and towards portfolios of evidence – what have you done? – a shift from measuring activity to measuring impact. 25% of Information Technology (IT) workers in the United States do not have degrees. Some universities are promoting programme and skill choice allowing students to accumulate micro-credentials throughout their working career, always adding organisations.

A number of the questions from the students centred around where to find jobs, the absence of recruiters and job opportunities on hand, and the employment rates for students with ICT qualifications. Mindset shift towards proactivity in creating value for organisations is the future of work.

7 Leveraging digital platforms is the space for entrepreneurship

There are no customers anymore – there are creators and consumers. Digital platforms are opening up a new potential space for entrepreneurship, as seen with Uber or AirBnB.

Marketplaces vary to reveal new earning opportunity segments



Source: International Organisation of Employers. (2022) Diverse forms of work in the platform economy.

8 Support is needed for youth career path development

There is a lack of support in the transition phases between school and higher education, and higher education and industry. There needs to be an integrated approach to employment, working with industry and companies to support institutional exchange. Career path development partners will help to bridge these gaps.

To improve youth employability, a number of initiatives are bridging the skills gap including inclusive hiring, non-formal training, stakeholder engagement and formal technical and vocational education and training (TVET).

Skills training includes labour market-relevant digital skills, soft skills, mentorship, and workplace- and project-based learning opportunities for employment, and gig economy opportunities.

Digital skills, mentorship, and soft skills are essential components. Pathways to entering the digital workforce include e-mentoring, particularly to redress gender gaps in the tech industry, as well as digital business service and cybersecurity programmes.

9 Youth employment-centred policy formation is integral

Integrated youth employment needs to be addressed in both national strategies and policies — as well as mandatory youth service skills and youth employment schemes to help build networks and social cohesion.

This should include a robust inter-governmental framework that identifies the relevant government departments and their roles and responsibilities in policy implementation.

Policy options currently exist. The National Youth Policy 2020-2030 proposes interventions that facilitate holistic positive development for young people, one of the pillars of which is education and skills development.

There is also the Report of the Ministerial Task Team on the Implications of the Fourth Industrial Revolution for the Post-School Education and Training System as discussed by Zukile Mvalo, Deputy Director General, Department of Higher Education, which highlighted specific interventions for redressing skills imbalances.

However, there is a silo approach leading to duplication. A fully integrated action plan and strategy, based on an intra-governmental framework, would remedy this fragmented approach.

Interpreting key insights from the 2023 Dialogue is one of the next steps. Additionally, identifying critical success factors will ensure that the learnings from each year are preserved, making it possible to build on the success of the previous years' dialogues.

CRITICAL SUCCESS FACTORS

In this section, five critical success factors are identified that are key to future successful Dialogue engagements.

01 **Economic inclusion** is about building ecosystems of all stakeholders.

02 **Frameworks** for robust collaboration are necessary.

03 **An innovative pathway** to entrepreneurship is key.

04 **Practical solutions** to the future of work are essential.

05 **Strategic partnerships** with academia, industry and government are key.

1 Economic inclusion is about building ecosystems of all stakeholders

The theme for the 2023 conference was Collaboration for Economic Inclusion. Economic inclusion has been a difficult area to achieve in South Africa, yet remains critically important.

The ecosystem for developing the Future of Work needs to give voice to all the stakeholders on an equal basis.

Academics, industry experts and government were well represented at the event on the stage, yet students and entrepreneurs were less so.

The integration of all these stakeholders to build stronger communities will be required for successful ecosystem development.

2 Frameworks for robust collaboration are necessary

In this case, it takes three to tango — government, academia, and industry — in structured, robust, consistent collaboration to create future-ready and future-proof graduates. To date, this collaboration has been slow. There needs to be a clear, connected and relevant policy frame work in place to support these collaborations. The inability of government, academia, and industry to work together has been cited as one cause of current unemployment.

There is integration between academia and industry, but it is hesitant. Industry needs to guide what is required for employment. Investment in infrastructure, skills development, and inclusive policy, particularly for those left behind by the digital divide, can help redress imbalances.

3 An innovative pathway to entrepreneurship is key

"Find a problem a billion people have, and solve it."

Professor Herman Singh, CEO, Future Advisory

Entrepreneurial skills are as critical as digital skills. Identifying how TUT and IFoW graduates can leverage a pathway to entrepreneurship is becoming a critical element.

Emergent technologies are here to stay. AI is a great enabler. The COVID-19 pandemic was an opportunity for change, and industries without smokestacks successfully leveraged ICT. MSLearn offers freely available content, which can be built to certification to upskill any number of people at scale. According to one of the participants in the Dialogue:

"Thousands of partners make their business on Microsoft resources."

How can youth harness the benefits of this technology? It is estimated that by 2030, a further 30 million jobs will be created, with 50 million new technologies emerging.

The potential is for a new breed of entrepreneurs who can solve community problems by leveraging the benefits of these emergent technologies. There are any number of under-considered areas, and untapped opportunities, in South Africa – smart people can come together to find smart solutions.

South Africans can co-construct the world, but there needs to be a mind shift towards innovation and entrepreneurship, closely aligned with industry needs. There are spaces for incubators, accelerators and tech hubs to develop African technology for the rest of Africa.

4 Practical solutions to the future of work are essential

There can be no separation between theory and practice. Work-integrated curriculum is imperative to equip students with the skills they need to navigate a digitised future.

Hands on, experiential learning also helps to fulfil the industry request for graduates with practical experience. But there needs to be substantially better opportunities offered to students to gain this experiential learning.

Work readiness tools like sales and finance need to be included, as does access to common software packages such as MS Excel, Pastel, and Sequel.

The bridge between academia and industry has shifted from theoretical to practical, with the dynamics of the workplace constantly shifting. The relationship between academia and industry is crucial to producing work-ready graduates who can meet the needs of industry in flux.

5 Strategic partnerships with academia, industry and government are key

Creating the practical solutions for the future requires collaboration between different partners, each bringing their own insights to an inclusive framework. The ability of IFoW to develop institutional arrangements and onboard partners needs to go beyond the Dialogue and into the actual work of finding solutions for students, entrepreneurs, creators and more.

Developing the frameworks on which collaborations and engagements will take place on a more regular and planned basis throughout the year will contribute to the results of the Dialogues.

Glenda Miles
Education Industry
Advisor Africa, Microsoft

05

RECOMMENDATIONS AND CONCLUSIONS

The Future of Work 4IR Dialogue 2023 is an integral step toward finding solutions in the 4IR landscape for current and future jobs and businesses. The youth of today have more opportunities and challenges than ever before, and also the great responsibilities that come with choice.

> "Globalisation opens up marvellous opportunities for human beings across the globe to share with one another, and to share with greater equity in the advances of science, technology and industries. To allow it to have the opposite effect is to threaten freedom in the longer term."

Rolihlahla Nelson Mandela

The responsibility lies with those who educate and open doors for the youth to ensure that the systems, processes, frameworks and dialogues are in place to grant access to the largest opportunities to thrive in this new landscape.

RECOMMENDATIONS

1 Enhance institutional frameworks to capture the Future of Work initiatives and engage with the ecosystem.

Enhanced institutional frameworks are important to ensure ecosystem engagement, build the capacity of strategic partners and harness actions going forward.

Revitalise the Strategic Advisory Council. Invest in stakeholder PMO by developing a framework against which meetings will take place.	A memorandum of understanding (MoU) or a statement of intent from stakeholders can assist in accountability.	Developing an agreed up and cohesive roadmap with key milestones will be critical.

2 Build on institutionalised thinking towards better advocacy and lobbying in policy making.

It is the strength of the ecosystem to raise policy dialogue in conjunction with the Tshwane University of Technology (TUT) and the Institute for the Future of Work (IFoW).

Transformative governance strengthens good governance to spur inclusive growth, structural transformation, and policy making. Policy needs to work both up and downstream to capacitate the youth.

There's undoubtedly a need for integrated transformation, based on sound policy, with regard to addressing the youth unemployment crisis.

In the context of South Africa's poly-crises, policies that focus on the three I's - investment, insurance, and innovation — are crucial: investment in technology for the common good, which addresses community challenges, investment in insurance to build resilience, and investment in innovation in its many forms — technological, economic, cultural — to respond to unknown and unknowable challenges.

Developing policy positions endorsed by the Strategic Advisory Council, appropriately researched and endorsing an evidence-based approach by TUT and IFoW, with the partnership of government and industry, will have the greatest chance of success.

3 Incorporate 21st Century critical thinking and an entrepreneurial mindset into future engagements

Entrepreneurship and the formation of small, medium and micro enterprises (SMMEs) to spur economic growth has become a critical part of the solution for South Africa. In focus groups during the event, young people expressed the desire to see more entrepreneurs in the panels and greater entrepreneurship discussion.

Many students asked to hear the stories of successful entrepreneurs to help them craft their journeys on the stage and in the foyer.

More can be done to assist the entrepreneurs and create peer-to-peer networks for greater learning.

For the youth, access to entrepreneurial skills can be the difference between success and struggle. Hearing from entrepreneurs who have moved from idea to marketplace to ongoing sustainability will provide valuable advocacy on the challenges and realities of entrepreneurism.

4 Identify specific opportunities and open up direct dialogue for students

Feedback from students included a desire to have more engagement with recruiters and opportunities in the Dialogue space. The immediate issue for them is that of securing a job, a paying internship or a foothold into the industry today, with the emphasis on their immediate future of work.

Identifying the top key opportunities and bringing recruiters to the table in the conference and the conversations will assist the students and future entrepreneurs.

Specific opportunities exist, such as the hydrogen economy highlighted in the Dialogue to open up possibilities for the green technology evolution. Students in this industry and South African entrepreneurs can participate as value-creators and capture the value gaps in the current transport, manufacturing, agricultural or logistics systems.

Although the manufacturing arena is relying increasingly on machines, opportunities still exist within the manufacturing value chain.

How can IFoW leverage its research expertise to identify specific opportunities for students and entrepreneurs?

Similarly, entrepreneurship ecosystem partners can provide invaluable direction around the variety of funding and business model options available to young entrepreneurs.

5 Create business & financing models for SMMEs and informal enterprises

Many speakers at the Dialogue came with solutions, identifying new ways to work with today's challenges. This includes the creation of new business models.

With the shift towards entrepreneurship as a catalyst for economic growth, there's a need to provide models for upscaling, financing, and business advocacy.

Some of the proposed activities include:

Mapping/identifying
innovative financing models for SMMEs and informal enterprises.

Developing
strategic frameworks for the scaling up of innovative financing models for SMMEs and informal enterprises.

Supporting
capacity-building initiatives in business development services, digital literacy and other digital solutions for SMMEs and informal enterprises.

Promoting
policies, regulation and incentives conducive to the growth, formalisation and access to finance of SMMEs and informal enterprises.

Supporting development of
knowledge exchange initiatives and documentation of lessons learnt to promote innovative approaches to the growth, formalisation and access to finance of informal firms and also advancement of SMMEs.

6 Develop monitoring and evaluation measures that are human-centric

Monitoring and evaluation of policy progress needs to be multi-factorial, with a focus on a human-centric, "no-one left behind" ethos.

The human development perspective focuses on improving people's lives with opportunity and choice, rather than development theory's focus on GDP growth that "trickles down." as a means to increase people's agency and capabilities.

Human development indicators for growth include the Human Development Index (HDI) and the GINI coefficient.

The Human Development Index (HDI) measures social and economic development by focusing on the following four factors:

- mean years of schooling
- life expectancy at birth
- expected years of schooling
- gross national income (GNI) per capita

The GINI coefficient measures the degree of inequality in income/wealth distribution

Indicators for growth include access to digital infrastructure which can be measured by:

- Numbers and rate of smartphone adoption
- Mobile banking rates
- Mobile and terrestrial internet penetration
- Smartphone ownership
- Access to 4G and 5G networks
- Expansion of digital markets
- Mobile adoption of technology

Indicators specific to bridging skills gaps include:

- Digital skills inclusion in primary, secondary and tertiary curricula
- Formal digital skills training programmes, including technical vocational education and training colleges (TVETs)
- Start-up capital funding opportunities
- Tech hubs, accelerators and incubator partnership opportunities
- Paid internship opportunities

In terms of specific measurable actions, based on the recommendations mentioned in the Dialogue, the following growth indicators can be considered:

- An integrated action plan from government, academia, and industry with demonstrable timelines.
- An increase in collaboration between government, academia and industry to shape a flexible curriculum in line with an increasingly digitised work environment.

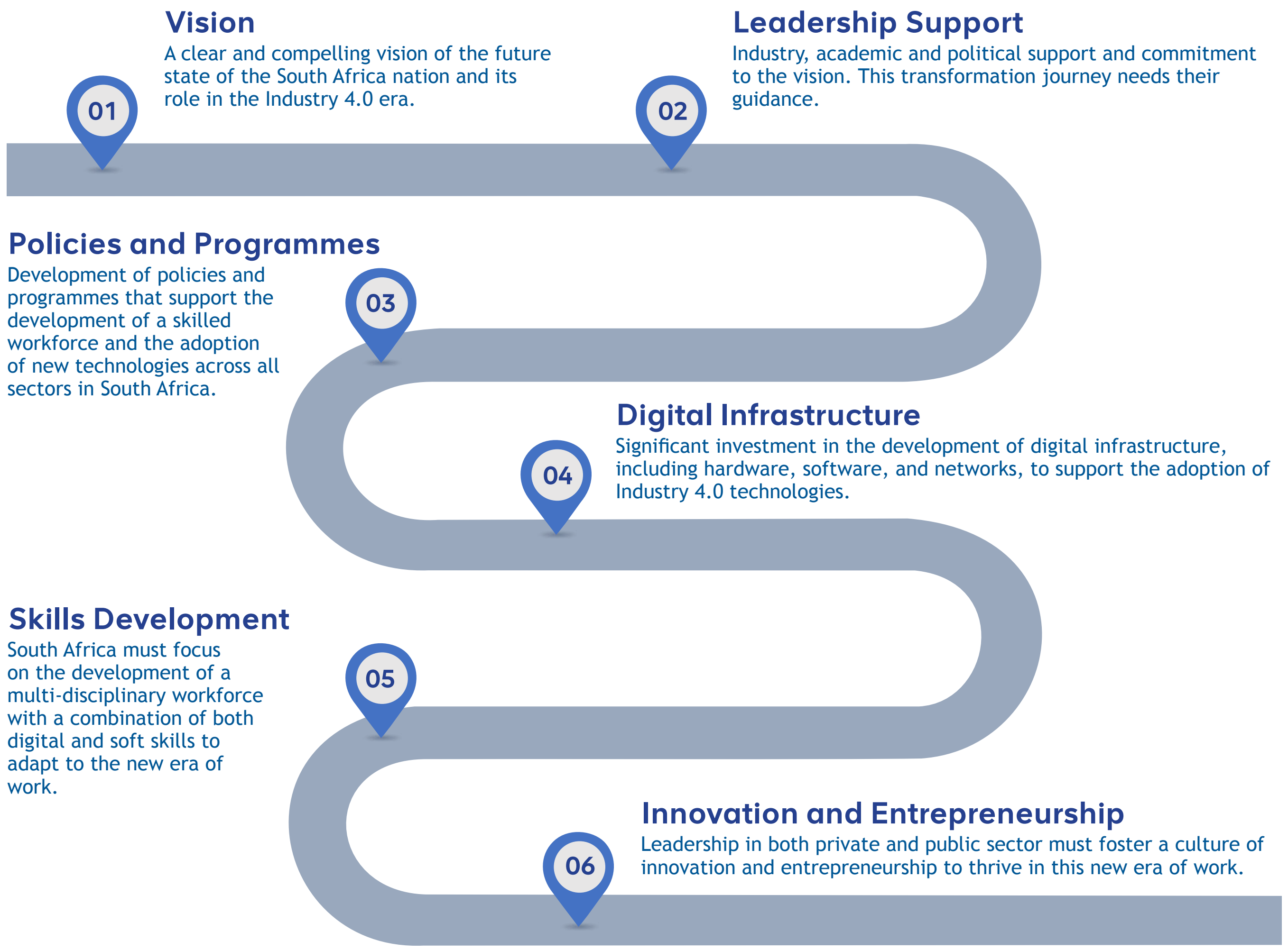
7 Develop a roadmap towards Industry 4.0 adoption in South Africa

The current government policy response to address unemployment rates includes digital skills as one of eight priority areas. However, the new world of work creates new opportunities and risks — South Africa needs to be ready. Investment in infrastructure, skills development, policy development and addressing those left behind in the digital divide are critical.

Key initiatives include developing a national strategy, investing in education and skills development, and investment in digital infrastructure development.

A potential roadmap needs a clear vision, leadership support, policies and programmes, digital infrastructure, skills development as well as innovation and entrepreneurship.

A Roadmap towards Industry 4.0 Adoption in South Africa



Source: Stats SA (2022) Roadmap towards Industry 4.0 adoption in South Africa

CLOSING STATEMENT

Dear Esteemed Attendees, Colleagues, and Leaders

As we conclude this insightful dialogue on the future of work, particularly in the context of Africa's vibrant and evolving landscape, I extend my heartfelt gratitude to each one of you for your valuable participation and contributions. This report not only marks the culmination of our discussions but also serves as a beacon guiding us towards a future that is both challenging and full of potential.

To our distinguished policymakers, academic leaders, industry experts, and representatives from civil society: your perspectives have enriched our understanding and highlighted the multifaceted nature of the future of work. Your insights have underscored the necessity of an integrated approach, recognising that the future of work is not merely a concept to be analysed but a dynamic reality that will shape the lives of millions across the African continent.

In a world increasingly influenced by technological advancements, our dialogue has shed light on how these changes will impact society, especially in the African context. We stand at a unique juncture where the rapid progression of the Fourth Industrial Revolution (4IR) intersects with our deep-rooted values of Ubuntu, reminding us that technology should enhance, not diminish, our humanity. This report emphasises the importance of ecosystem thinking. We are reminded that no single entity can navigate the complexities of this future alone. Our strength lies in our collective ability to collaborate across sectors, to share knowledge, and to build partnerships that are resilient, inclusive, and forward-thinking. Our discussions have illuminated the pathways through which technology can be harnessed to address societal challenges, drive economic growth, and foster a more equitable society.

To the public, whose interest in the future of work, technology, and societal impact remains paramount, this report is a testament to our commitment to transparency and inclusivity. Your engagement and curiosity fuel our pursuit of solutions that are not only effective but also accessible and beneficial to all segments of society.

As we move forward, let us carry with us the spirit of this dialogue — a spirit of collaboration, innovation, and a deep-seated belief in the potential of Africa's youth. Let us continue to work together to shape a future where technology serves as a catalyst for positive change, empowering individuals and communities across the continent.

In closing, I am inspired by the collective wisdom and commitment demonstrated throughout our discussions. Together, we are charting a course towards a future that embraces the possibilities of technology while staying true to the values of humanity and unity. The journey ahead is ours to shape, and I am confident that with our combined efforts, we will create a brighter, more inclusive future for Africa.

With sincere appreciation and hope for the future,

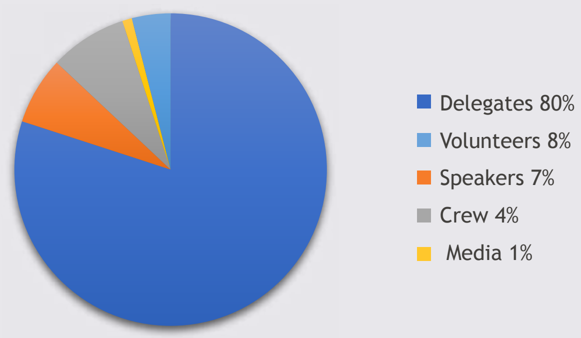
Tseliso Mohlomi
Senior Director
Institute for the Future of Work

APPENDIX I

IFoW Audience Representation

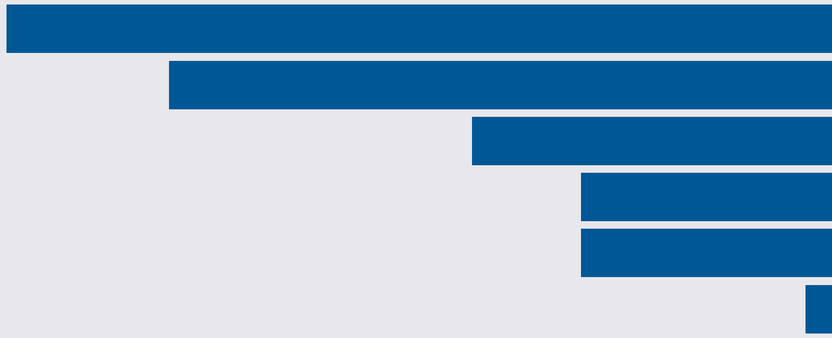
2023 Categories

501 PARTICIPANTS



2023 Audience Representation

Academia	42%
Industry	32%
Students	13%
Government	6%
Other	6%
Civil Society	1%



2023 Industry Type

33,90%	Other
23,20%	Education & EdTech
22%	IT & Software
7,20%	Professional Services
3%	Manufacturing & Industrial Automation
2,60%	Finance, Financial Services & Fintech
1,80%	Media, Entertainment, & Gaming
1,40%	Public Management & Policy
1,20%	Energy, Renewable & Cleantech
1%	Infrastructure-tech (including Real Estate, Mining, Construction)
0,60%	Eco-Innovation and Sustainable Technologies
0,60%	Agriculture & Agri-tech
0,40%	E-commerce & Retail
0,40%	Healthcare & Biotechnology
0,40%	Telecommunications & Connectivity
0,20%	Smart Logistics & Supply Chain Tech
0,20%	Travel Tech, Tourism & Hospitality Innovation

Source: SAIS Participant Data

APPENDIX II: REFERENCE LIST

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APPENDIX III: STRATEGIC PARTNERS

South African Innovation Summit (SAIS)

South African Innovation Summit (SAIS) is an organisation dedicated to entrepreneurs in all tech industries, ranging from incubation to the entrepreneurial lifecycle. SAIS hosts the largest tech summit on the African continent. SAIS's vision is to be the go-to entrepreneurship community on the African continent, facilitating and enabling the growth of tech and tech-enabled start-ups.

Organisation details:
Registered Name: SA Innovation Summit
Tel: 082 708 1960
Website: http://innovationsummit.co.za/
Physical Address: 20 Baker St, Rosebank, Johannesburg, South Africa

United Nations Development Programme (UNDP)

UNDP is the United Nations' powerhouse for eradicating poverty and fostering sustainable growth. UNDP empowers communities to become self-sufficient, creating a legacy of resilience and progress. In a changing world, UNDP is a beacon for a future where every individual thrives. The UNDP is a force for a better tomorrow.

Organisation details:
Registered Name: United Nations Development Programme
Tel: 012 354 8008/8013
Website: https://www.undp.org/south-africa
Physical Address: UN House Level 08,
Metropark Building, 351 Francis Baard Street Pretoria, South Africa

German Corporation for International Cooperation (GIZ)

German Corporation for International Cooperation (GIZ) is a German development agency that operates globally, providing services in the field of international development cooperation. GIZ works on behalf of the German government and various international clients to implement projects aimed at promoting sustainable economic development, environmental protection, and social progress in partner countries. The organisation focuses on a wide range of sectors, including education, healthcare, governance, and economic development, among others.

Organisation details:
Registered Name: GIZ Office South Africa
Tel: 012 423 5900
Website:https://www.giz.de/en/worldwide/312.html
Physical Address: 333 Grosvenor Street Hatfield Gardens, Block C, Pretoria, South Africa

Gibela Rail Transport Consortium

Gibela is a black economic empowerment (BEE) rail transport consortium, formed in 2013 with a 70% stake held by French rail company Alstom and 30% by Ubumbano Rail. Initially created for executing the Passenger Rail Agency of South Africa's (Prasa) rolling-stock fleet-renewal program, Gibela has a

R51-billion contract with the South African government to produce 600 state-of-the-art X'trapolis MEGA commuter trains. This includes maintenance, technical support, and spare parts.

Organisation details:
Registered Name: Gibela Rail Transport Consortium
Tel: 010 600 0651
Website: https://www.gibela-rail.com/
Physical Address: 2 Shosholoza Avenue, Dunnottar, South Africa

ANZA Capital

ANZA CAPITAL is a female-led investment firm addressing the funding gap for early-stage businesses in Africa, with a focus on gender inclusive tech businesses in Southern Africa. ANZA aims to unlock the immense potential of African tech entrepreneurs to create impact and prosperity on the continent. ANZA understands business, the start-up journey and growth and scaling.

Organisation details:
Registered Name: Anza Capital
Tel: 082 052 0939
Website: https: https://anza.holdings/
Physical Address: 20 Baker St, Rosebank, Johannesburg, South Africa

AGRICULTURAL RESEARCH COUNCIL (ARC-LNR)

ARC is dedicated to achieving excellence in research and innovation for sustainable agricultural systems and economic development. Positioned as the principal agricultural research institution in South Africa, our vision underscores the commitment to harnessing ARC's capabilities to become a renowned organization celebrated for excellence in our core area of business.

Organisation details:
Registered Name: AGRICULTURAL RESEARCH COUNCIL
Tel: 012 672 9111
Website: https://www.arc.agric.za
Physical Address: 1134 Park street, Hatfield, Pretoria, South Africa

MTN Group

MTN is a leading telecommunications company headquartered in South Africa, with a mission to connect lives and transform futures. Operating across the African continent, MTN provides mobile and fixed-line voice services, data, and digital solutions. Known for innovation, MTN continuously introduces cutting-edge technologies to enhance digital experiences. The company is committed to fostering connectivity for progress and inclusion, actively engaging in corporate social responsibility initiatives for education, healthcare, and community development. As a trailblazer in telecommunications, MTN is dedicated to shaping a connected future for thriving societies.

Organisation details:

Registered Name: MTN Group Limited
Tel: 011 912 3000
Website: https: https://www.mtn.com/
Physical Address: MTN Group Limited, Innovation Centre, 216 14th Avenue,
Fairland, Gauteng, 2195, South Africa

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