



South Africa's New Science, Technology and Innovation Decadal Plan: *Focus on the World of Work*



science & innovation

Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA





What will the world of work look like in the future, and what are its implications for the labour market and employment?

Universities and the 4IR Labour Market

All key questions, which the Decadal Plan considers

The 2022-2031 STI Decadal Plan

- Implementation plan for the 2019 White Paper
- Forms part of the last phase of the National Development Plan, and responds to the Economic Reconstruction and Recovery Plan and the Sustainable Development Goals
- Draws input from NRDS/TYIP review; Foresight Study, and HESTIIL Ministerial Review
- Implemented in fiscally strained environment
- Premised on a whole-of-government / society approach to science and innovation, enabling for a pooling of resources across government

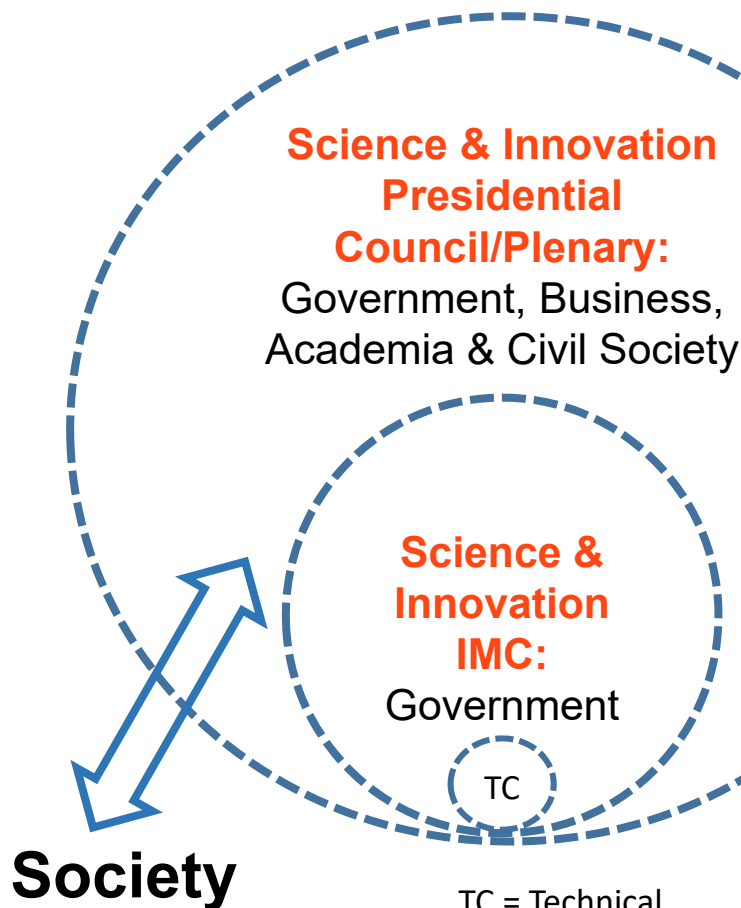
Decadal Plan: System Goals

- Creating an enabling policy environment for inclusive innovation
 - *Skills and innovation capabilities of citizens and organisations*
- **Expanded and future-proof human capabilities**
- Expanded and transformed research system
- An inclusive, coherent and coordinated National System of Innovation
- Increased funding for STI

- Supported by expanded and strategic internationalisation; and monitoring, evaluation and policy learning.

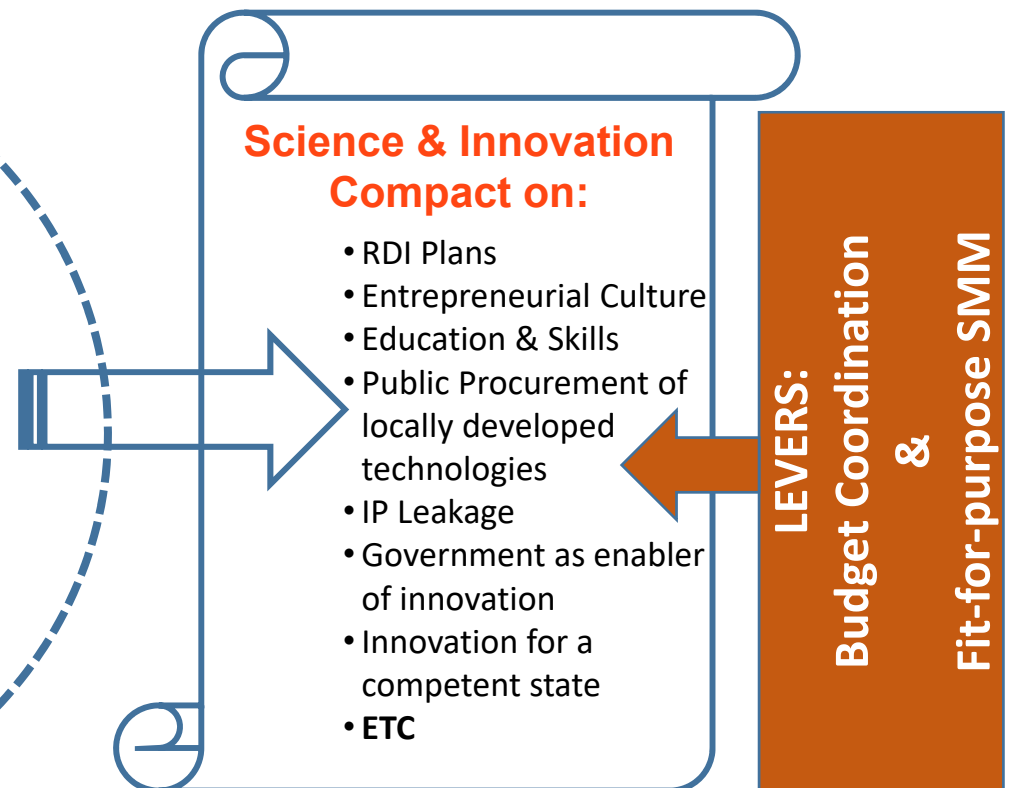
Science & Innovation coherence and coordination

Structures for Consultation & Decision making



TC = Technical Committee of DGs.

Topics/Contents of Consultations & Decisions



Decadal Plan philosophy

- Building an STI system that can make an increased positive impact on SA's socio-economic & environmental priorities
- Balance required between a focus on impact (e.g. inclusive innovation) and on interventions to continue the development of the system (e.g. developing knowledge and institutions)
- These two foci are overlapping
- Therefore, a commitment to continued funding for basic science and research, as well as social sciences and the humanities is made

Decadal Plan philosophy (2)

- Decadal Plan thematic content is arranged around **multi-disciplinary societal** grand challenges responding to the National Advisory Council on Innovation Foresight areas
- Technology focus areas are not prescribed to allow for demand-driven and bottom-up development of knowledge and solutions to these challenges
- Thus, if a discipline is not specifically mentioned in the Decadal Plan, that does not mean funding is to stop

Decadal Plan thematic priorities

- Sectorial support and industrialization
- New sources of growth
- Innovation in support of health & energy societal grand challenges
- Ecosystem based climate change adaptation and mitigation
- ***Education for the future and the future of society***
- Innovation in support of a capable state
- Innovation for inclusive development

Societal Grand Challenges and illustrative issues

SOCIETAL GRAND CHALLENGE	ILLUSTRATIVE CONTENT (To be refined by a multi-stakeholder management team)
Education and skills for the future	Curriculum development, ICT-enabled education, technical skills, importance of engineering sciences, transdisciplinary approaches, ETC
Climate change and environmental sustainability	Biodiversity loss, changing attitudes to sustainable technologies, soil health to support agriculture, mitigation and adaptation into. climate change, ETC
Health and well-being	Mental and physical health, basic requirements for well-being e.g. nutrition, water, energy, shelter, ETC
Future of employment and industrialization	Manufacturing, Mining, Agriculture, High-technology exports, STI for the services sector, preventing job-less growth, ETC
The future of society	Ethics related to Artificial Intelligence, increasing the competence of the state, ETC

Increased and future-proof human capabilities

- Focus on:
 - High-end (PhD-level) Human Capabilities as drivers of innovation
 - Work place learning and work integrated learning
 - Strengthened Humanities and Social Sciences (HSS)
- Alignment of development of human capabilities with Decadal Plan thematic priorities (coordination at Inter-Ministerial Committee with sector Master Plans), exploiting unique attributes of Universities / Universities of Technology, TVET and CET colleges, SETAs, Science Councils, National Facilities, SOEs and other public research organisations

Increased and future-proof human capabilities: Examples interventions


- Enrolment planning as a state steering mechanism to control for the right mix of students in the PSET system
- Implementation of a sustainable financial ecosystem for student funding leveraging state & other funding sources
- Engagement with the relevant SETAs and SoEs in the building of intermediate level R&D skills
- Ongoing review of PQMs with regard to responsiveness future skill needs (with DHET and CHET)
- Implementation of a digital platform for post-graduate student tracking
- Investment in skills forecasting capabilities
- Support for entrepreneurship development

Expanded and transformed research system

- Includes objective to expand and transform researcher base through fast-tracking “Staffing South Africa’s Universities” framework
- Other interventions:
 - Refocusing efforts and resources toward increasing the research production of HDIs
 - Spearheading initiatives aimed at PhD qualification attainment in science councils and national facilities
 - Instituting programmes of industry-based research studies to promote industry-based Masters and Doctoral programmes

Education for the future & future of society

- Problem statement: poor education outcomes; risks posed by automation; widening digital divide
- Response:
 - Synergies with:
 - National Plan for Post-School Education and Training
 - National Digital and Future Skills Strategy
 - Build on existing e-science programmes
 - Infrastructure, capacities for MOOCs
 - Partnerships with industry workplace learning
 - Partnerships with industry, SETAs for NEET group (not in employment, education and training)
 - Holistic approach 21st century skills (AI, robotics)
 - Neuroscience research enhance learning outcomes



The Decadal Plan is an opportunity for all concerned with science, technology and innovation in South Africa, to achieve greater **impact** through: enhanced **partnerships** enabled by improved **governance** and coordination; strategic and focused **policy** direction; increased and more efficient **funding**.

“To me, ideas are worth nothing unless executed. They are just a multiplier. Execution is worth millions.” Steve Jobs

Thank you