The STI Decadal Plan, 2021-2031: Progress

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Select Committee on Education and Technology, Sports, Arts and Culture.

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science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

Outline of presentation

- The philosophy underlying the Decadal Plan
- The need to adapt to rapid technological change
- The STI priorities and Societal Grand Challenges
- Systemic enablers of the Decadal Plan:
  - The Science and Innovation IMC
  - The Innovation Compact
  - A new Strategic Management Model
  - STI Public Budget Coordination
- Progress highlights to date
- Feedback from the inaugural Science and Innovation IMC
- Next steps in the implementation of the Decadal Plan

Evolution of post-1994 STI policy

1995- 2005

- WP 1996 (NSI)
- NRDS
- Bio-technology centres
- DST split from DACST
- NACI

Develop an NSI that serves the interests of all SA

2006- 2018

- TYIP
- Bio-economy
- HySA
- IPR Act & NIPMO
- TIA & SANSA
- Ministerial Review of NSI

NSI begins to respond to post 1994 demands

2019-

- DST to DSI
- WP 2019
- Decadal Plan
- HESTIIL Review

NSI increases focus on technology development and innovation for socio-economic development incl in support of a capable state

Philosophy underlying the Decadal Plan

- The 2019 White Paper signaled a shift of focus from building the NSI, to deriving maximum impact from the NSI to help address SA's challenges.
- The SA NSI has pockets of excellence, and so the intention is to continue with the development of the NSI e.g. to support institutions and develop research capacity and high-end skills,
- The social sciences will be mainstreamed in all of the programmes and projects – to address the complexity of the challenges facing SA and the world
- A deliberate focus on **just transitions** e.g. in health, education and energy. To illustrate, the move to renewables for energy must also take into account the energy needs of poor rural households, not only the needs of industry and middle-class consumers.

The need to adapt to rapid technological change

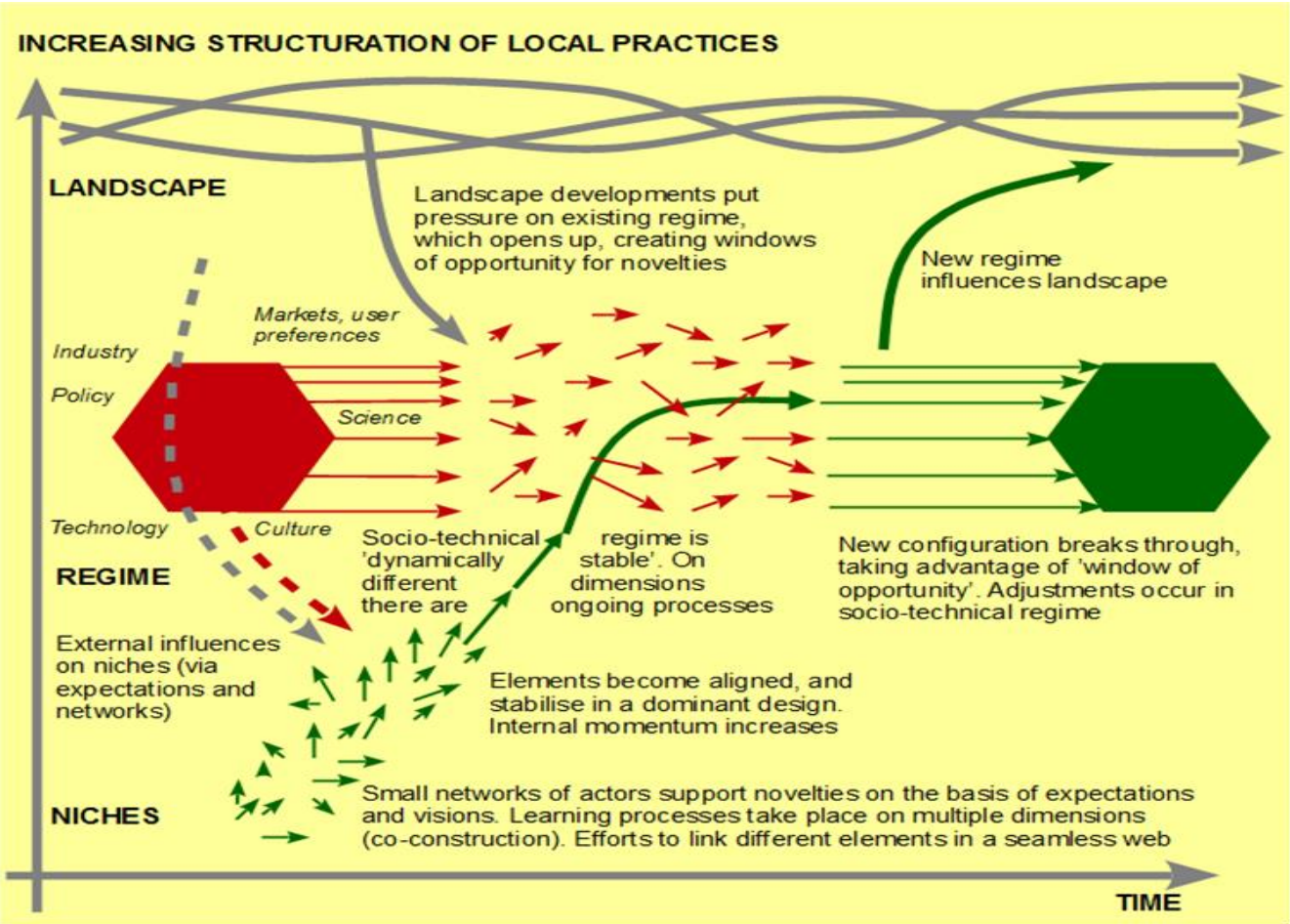
Theme: 2019 White Paper on Science, Technology and Innovation

Science, Technology and Innovation
enabling
inclusive sustainable
South African **development**
in a
changing world

Socio-technical systems: An example

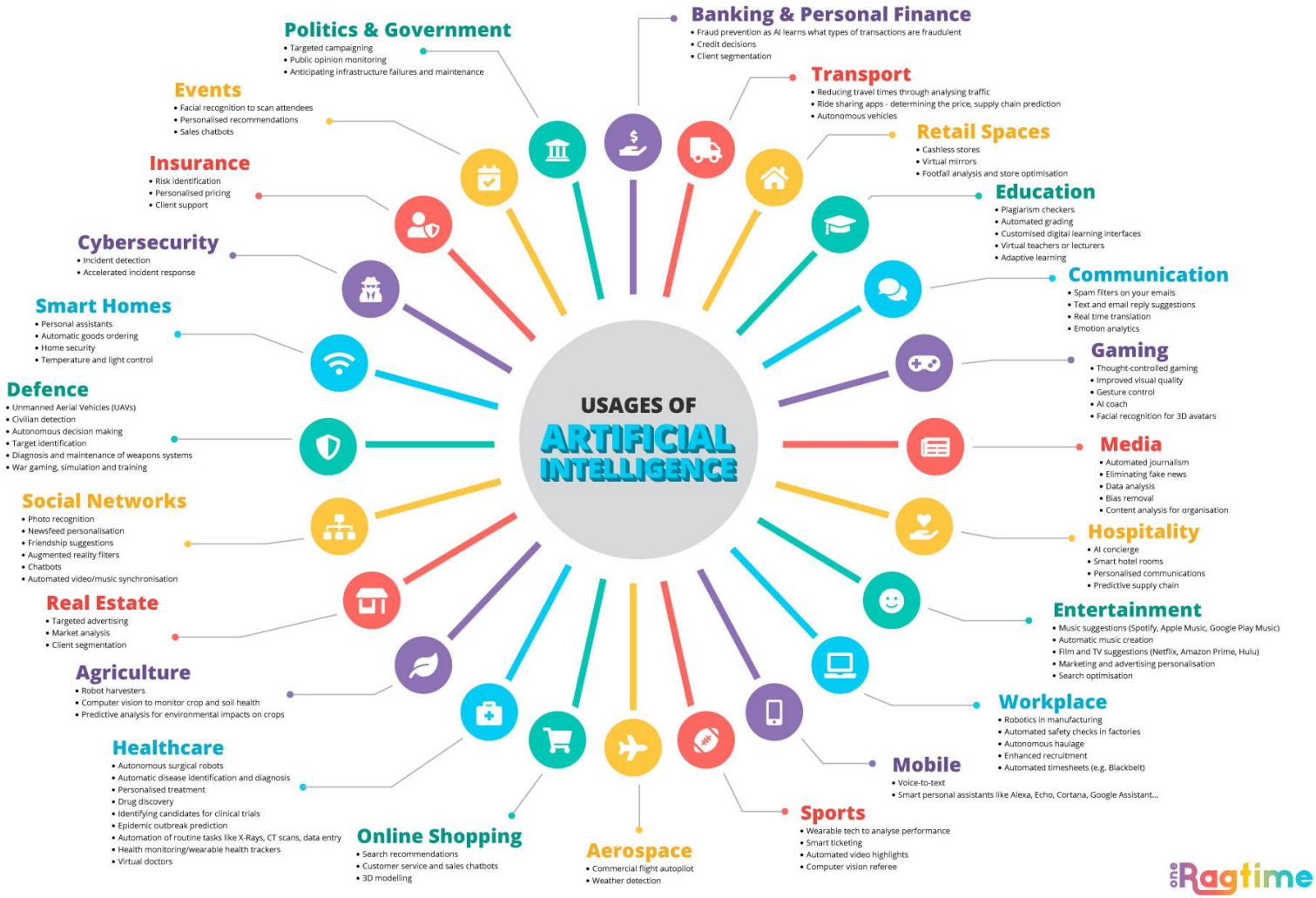
Figure 3. Socio-technical system for mobility (adapted from Geels 2005b: 446).

How STI disrupts socio-technical systems giving rise to new regimes



Geels, 2002, Geels and Schot, 2007, Schot and Kanger, 2016

Disruption: Artificial Intelligence



STI priorities and Societal Grand Challenges

NACI Foresight STI priorities

- Climate change and the Circular Economy
- Education for the future
- Future of Society
- ICTs and Smart Systems
- High-technology industrialisation
- Nutrition security
- Water security
- Health innovation
- Sustainable energy

Societal Grand Challenges in Decadal Plan

	Societal Grand Challenges	Illustrative content
1	Climate Change & Sustainability	Climate change, as well as issues such as bio-diversity loss, waste, pollution, and soil erosion
2	Education, Skills and the Future of Work	The education & skills value chain thus including ECD and TVET colleges, skills for the 4IR, Curriculum change, STI for education and skills development, role of ICTs, etc.
3	The future of society	Impact of rapid technological advancement on human and social dynamics, AI and ethics, inequality and livelihoods, the social compact of science, trust, national identity, globalization, competence and role of the state in future societies, "what it means to be human", future of work etc.

STI programmes highlighted in Decadal Plan

	Large STI programmes	Illustrative content
1	Innovation for a healthy population	Health includes both physical and mental, continue to build on existing successes while focusing on new issues e.g. pandemics, behavioural and societal aspects, including Indigenous Knowledge systems
2	Innovation for energy security	Energy for industry, and for poor and rural communities, renewable clean energy, a just transition, etc.
3	Innovation for a capable and inclusive state	Improved decision making e.g. using satellite data, technology for service delivery, supporting local economic development

Growing the South Africa economy

	Sources of growth	Illustrative focus areas
1	Sources of new economic growth for a re-industrialised, modern economy	Exploiting new sources of growth, in particular the Circular Economy, and the Digital Economy
2	Modernising existing industries	A focus on high-tech industries, also the services sector, Modernising of existing sectors (mining, agriculture and manufacturing). Also social issues such as employment loss in mature industries, and support for SMMEs and regional and local systems of innovation etc.

Economic growth: modernizing existing sectors using ICT as a new source of growth

Modernising Existing Industries: Agriculture

ICT-based Applications in sectors modernisation

Agriculture

Agriculture

- **In the agricultural sector, the applications of digital technologies are expected to drive competitiveness by addressing several productivity challenges.**
- **Some of these productivity challenges that can be addressed by digitisation and precision tools include the high and volatile input costs (fertiliser, water etc.), delayed detection of crop and animal diseases outbreaks and inability to timely access market trading information by the farmer, in particular small-scale farmers.**
- **Advances in ICT-based applications offer precision-driven solutions for the agricultural sector.**
    - **For example, the use IoT based on the integration of satellites, drones, and sensors technologies are driving crop monitoring improvements and diseases diagnosis - saving the sector millions of Rands from lost production.**
- **There is also immense benefit in generating and maintaining scientifically validated databases (big data), knowledge hubs and platforms for predictive modelling, surveillance and monitoring and developing decision support tools *for farmers.***
- **Thus, at the centre of the agriculture modernisation approach outlined in Section, ICT- based digitisation and precision tools are expected to be an integral part of the Sector's RDI responses to the overall improvement of the sector's productivity and competitiveness.**

Modernising Existing Industries: Manufacturing

ICT-based Applications in sectors modernisation

Manufacturing

Manufacturing

- **Manufacturing: Advances in ICT-based applications are of critical importance is driving productively improvement in manufacturing in line with the STI interventions aimed at:**
  - **enabling small business to adopt high tech,**
  - **new thinking for new industries; and**
  - **new thinking for mature industries.**
- **ICT-based innovations are set to play a crucial role in addressing the issues of growth, productivity improvements, sustainability and the current low number of successful and sustainable high-tech manufacturing start-ups, faced by various manufacturing subsectors.**

Modernising Existing Industries: Mining

ICT-based Applications in sectors modernisation

Mining

Mining

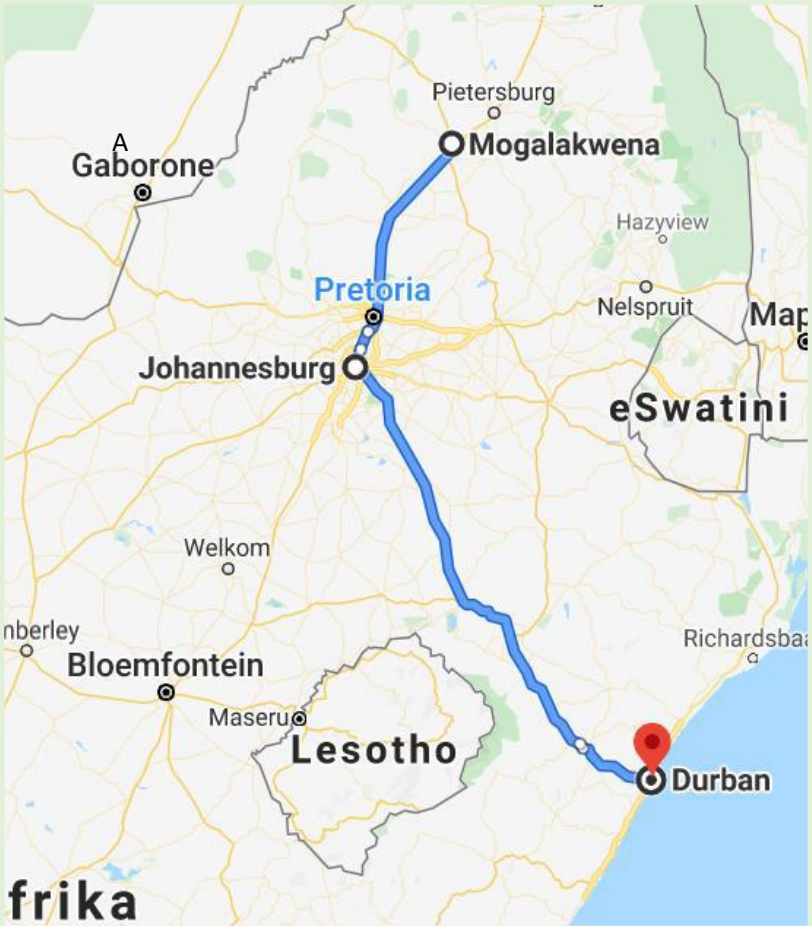
- The minerals industry contributes significantly to South Africa's internal energy requirements, trade balance, internal investment, domestic savings, foreign capital, and direct and indirect employment creation.
- Increasing costs, declining grades and the increasing average depth of precious metal mining are some of the factors weighing heavily on the production profile of the main commodities, and as the industry moves forward, there will be a greater need to streamline existing processes, improve recoveries and find innovative new cost-efficient ways of extracting these commodities.
- Given these challenges, there is a general consensus that the adoption of the digital, technology and data analytics offer tremendous benefits for the mining sector-in particular relating to the optimisation of operations and reduction of mining risks.
- The mining RDI implementation plans to be centred around the application of the ICT-based innovation are expected to drive the sector's improved global competitiveness.

Towards a just energy transition

Platinum Valley → Hydrogen Valley

Our objective is to kickstart a South African hydrogen economy through the creation of a Hydrogen Valley.

- The South African government's Department of Science and Innovation (DSI), in partnership with Anglo-American, Bambili Energy and ENGIE are looking into opportunities to transform the Bushveld complex and larger region around Johannesburg, Mogalakwena and Durban into a **Hydrogen Valley.**
- The goal of this study was to identify concrete, catalytic project opportunities in promising H2 hubs to kickstart H2 activities in the region. Promising ongoing initiatives like the H2 corridor project were leveraged in the selection of the hubs.
- The selection of the corridor from Durban to Mogalakwena was based on **existing hydrogen potential** to switch many of the industrial, mobility and buildings activities to hydrogen fuel or feedstock.
- Techno-economic analysis was carried out to assess the business case of identified projects, map their potential for positive social impact and define necessary policy actions to create the conditions for implementation.
- Within the Valley, project sponsors are interested in **identifying hydrogen hubs** which are local areas with high concentration of hydrogen customers/off-takers and nearby hydrogen producers. Hubs may also extend to neighboring areas such as Johannesburg extending towards Rustenburg, mimicking a hub and spoke configuration.



Catalytic Projects

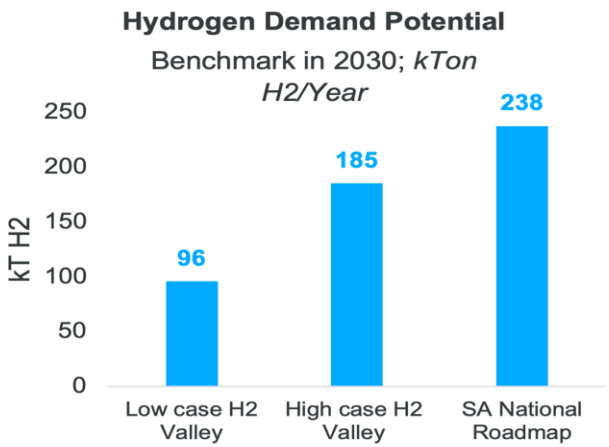
To kick-start the development of a hydrogen society in South Africa, a number of catalytic projects have been identified:

- Hydrogen Valley or Platinum Valley Initiative

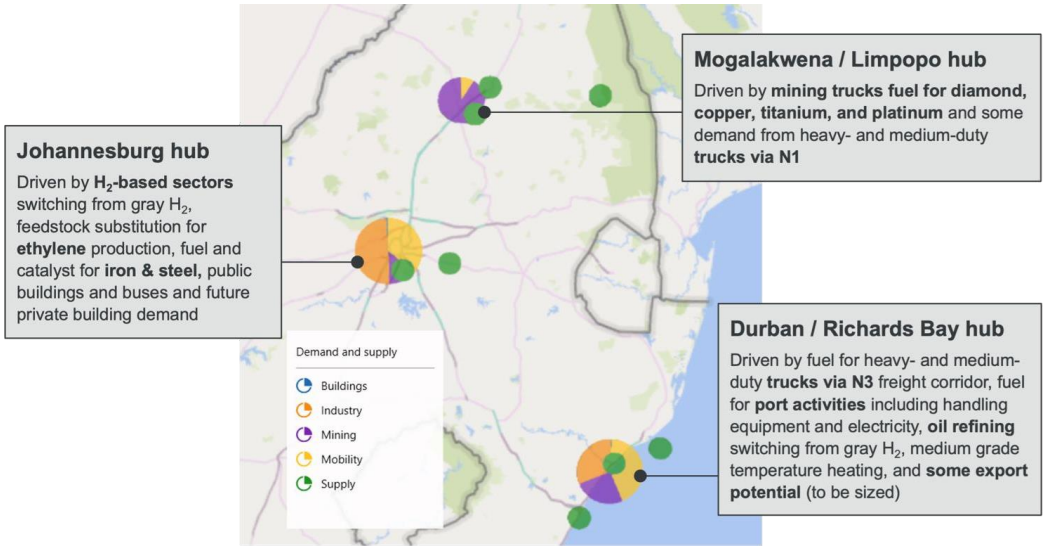
- Coal CO_2-X project

Platinum Valley - structured around three hydrogen hubs

H2 DEMAND



H2 VALLEY HUBS



- H2 demand in the Valley could reach up to 185 kt H2 by 2030, or 40%-80% of demand in the national hydrogen roadmap.

- By 2030, green H2 LCOH across hubs is expected to be ~$4 per kg H2 , still more expensive than gray hydrogen, with a green premium of $2-$2.5 per kg.

Key Actions and Milestones

2021-2024

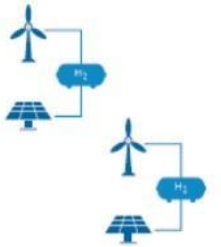
PRODUCTION
- Small scale electrolysis production
- At least 1MW GH2 production piloted

USE
- At least 100 buses and trucks powered by H2 by 2025
- At least 20 forklifts converted to fuel cell power by 2025
- At least 5 refueling stations deployed by 2025
- Demonstration in power generation and stationary fuel cells in public buildings
- Industry demonstration including SAFs

JOBS
- Upscaling of training and reskilling for new jobs

2025-2030

PRODUCTION
- 5GW electrolysis capacity under construction in NC
- 10GW electrolysis capacity deployed in NC by 2030
- 1.7GW electrolyser capacity deployed in H2 Valley by 2030
- At least 500kt H2 produced annually by 2030



USE
- At least 500 buses and trucks powered by H2 by 2030
- Power generation in turbines using H2 and ammonia
- Sector coupling and use in transport, industry

JOBS
- At least 20 000 jobs created annually by 2030

2030-2040

PRODUCTION
- Increase electrolysis capacity to at least 15GW by 2040

USE
- Sector coupling and full use in transport, industry and power

JOBS
- At least 30 000 jobs created annually by 2040

- Establish targets and policy signals
- Support demand creation
- Mitigate investment risk
- Harmonize standards and remove barriers
- Promote Research, Development and Innovation
- Strategic demonstration and deployment projects
- Skills development and public awareness

CoalCO2-X Programme

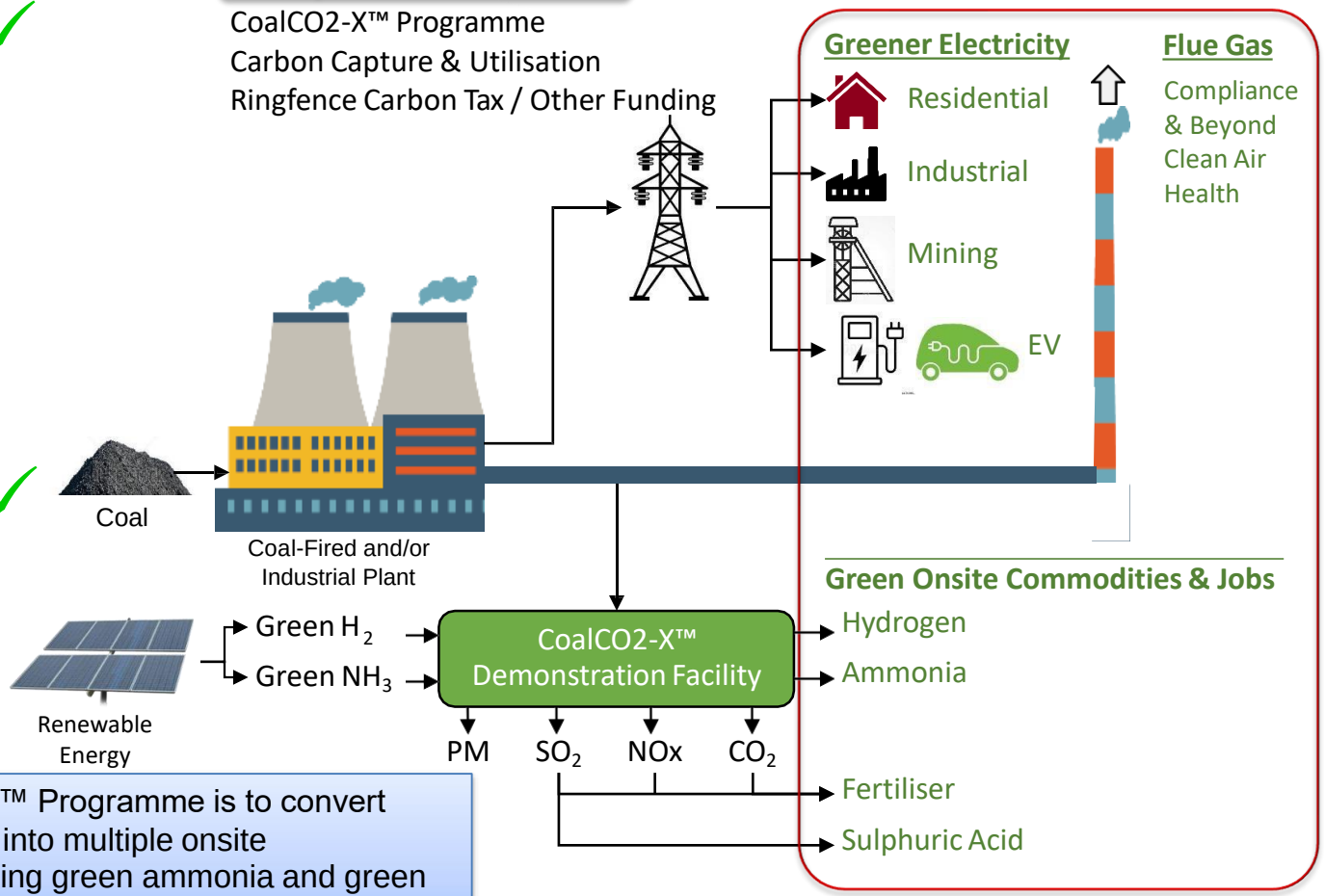
Challenges

- **Global COP21 (Paris Agreement) Commitments** ✓
  CO_2 → PPD trajectory; Carbon Tax: Eskom R11bn/y, Sasol R1bn/y
- **Local Pollutant Legislation** ✓
  PM, Hg, NOx, SOx → Industry Non-Compliance 1 April 2020
- **Environmental Crises** ✓
  Poor Air Quality → Sickness, Death, Decreased Economic Productivity, Changing Weather Patterns i.e. Drought & Floods
- **Constitutional Right vs Litigation** ✓
  Criminal Proceedings → Mittal, Min. of Env. Affairs & President

Proposed Solution

CoalCO2-X™ Programme
Carbon Capture & Utilisation
Ringfence Carbon Tax / Other Funding

Resulting in:



The objective of the CoalCO2-X™ Programme is to convert coal-fired and industrial flue gas into multiple onsite industrial commodity streams using green ammonia and green hydrogen employing local and international IP.

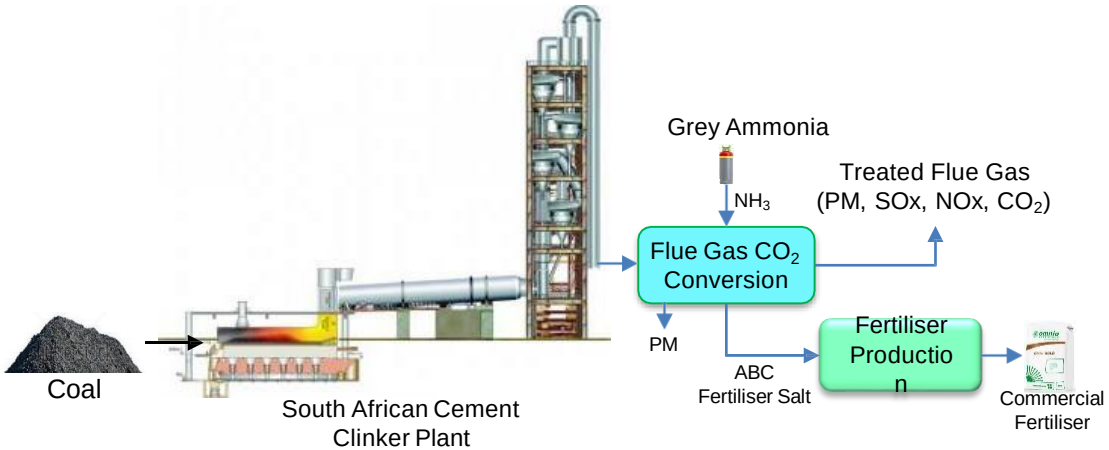
Towards a Carbon Capture and Utilisation Economy

Pictures from: pngwing,

Pilot Technology Demonstration & Training

Hard-to-Abate Cement Industry Pilot Plant Demonstration in 2022

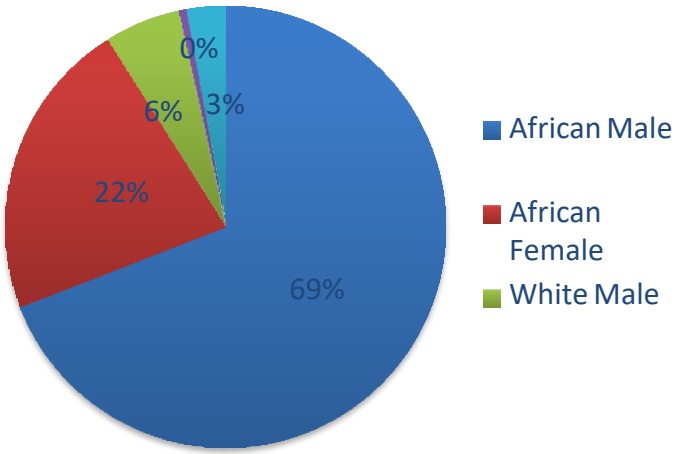
Capture: PM + Heavy Metals
Convert: CO_2 and NOx into Fertiliser



Future upscaling and demonstration at coal-fired power generation plants

CoalCO2-X™ Programme Awareness Training Completed in 2021

Central University of Technology, Free State



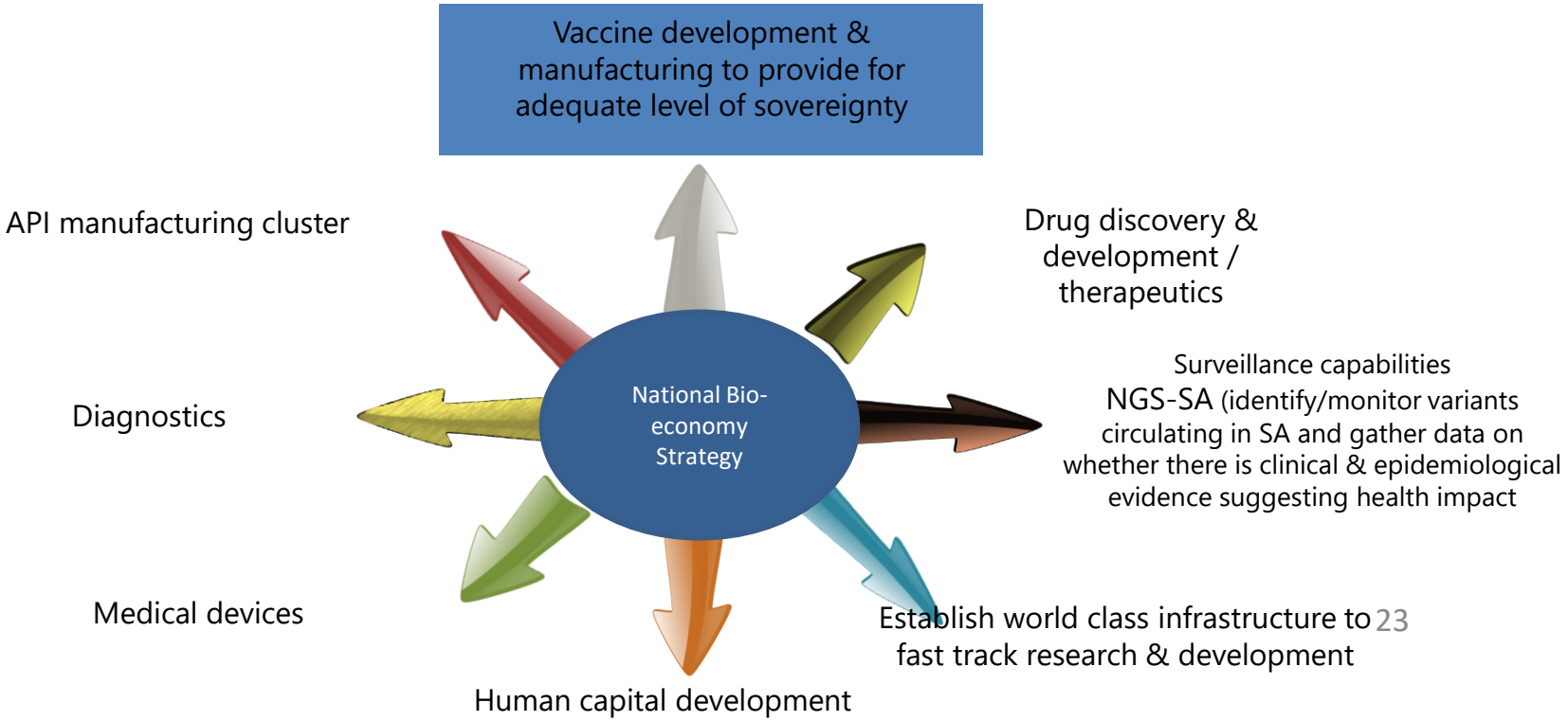
Awareness Training done for 178 Students

Future training of engineers and technicians in hydrogen and CCU technologies

Support social progress

DSI response to Covid-19

Support and strengthen the country's local research, development and innovation capabilities to manufacture active pharmaceutical ingredients, vaccines, biopharmaceuticals, diagnostics and medical devices to address the disease burden while ensuring security of supply of essential therapeutics and prophylactics.



Public expenditure on vaccines in SA

Table 3: Table showing estimated **expenditure on EPI Vaccines** in SA public sector as per **HP-16 2020 EPI Contract Circular**.

VACCINE	SUPPLIER	QUANTITY	PRICE	TOTAL COST
Cervarix	GSK Biologicals	3,405,900	R322.10	R1,097,040,390.00
Hexaxim	BIOVAC	19,564,650	R320.57	R6,271,839,850.50
Bacille Calmette-Guérin (BCG) vaccine	Biological and Vaccines Institute (BIOVAC)	1,164,560	R81.17	R94,527,335.20
RV (2) Rotavirus vaccine	GSK Biologicals	9,782,320	R117.88	R1,153,139,881.60
Heberbiovac HB	BIOVAC	619,550	R98.37	R60,945,133.50
Prevenar13	Biological and Vaccines Institute (BIOVAC)	14,673,480	R236.73	R3,473,652,920.40
Measbio	Biological and Vaccines Institute (BIOVAC)	2,068,260	R128.74	R266,267,792.40
Tetavax	Cipla Medpro	1,858,650	R73.40	R136,424,910.00
Diftavax	Sanofi Pasteur	1,858,650	R173.60	R322,661,640.00
Grand Total				R12,876,499,853.60

Note: GSK, Sanofi are Multinationals and BIOVAC local supplier BIOVAC generally plays in the Fill Finish and local Importer space.

Private-sector expenditure on vaccines in SA

Table showing estimated **expenditure on EPI Vaccines** in SA private sector.

VACCINE	QUANTITY	SINGLE EXIT PRICE	TOTAL COST
Cervarix	1,021,770	R1,119.17	R1,143,534,330.90
Hexaxim	5,869,395	R634.35	R3,723,250,718.25
Bacille Calmette-Guérin (BCG) vaccine	349,368	R298.35	R104,234,990.90
RV (2) Rotavirus vaccine	2,934,696	R521.01	R1,529,005,962.96
Heberbiovac HB	185,865	R126.33	R23,480,325.45
Prevenar13	4,402,044	R1,005.40	R4,425,815,037.60
Measbio	620,478	R1,612.18	R1,000,319,119.65
Tetavax	557,595	R119.59	R66,682,786.05
Diftavax	557,595	R1,094.85	R610,482,885.75
Grand Total			R12,626,806,157.51

Note: Assuming private sector purchases 30% public sector volumes (quantity) at SEP.

NB: Costs are generally higher in private sector vs public sector so the size of the market is sizable in R billions – enough to catalyse an Architectural Innovation led industrial development, back by both private and public capital:

- ***1) Underpinned by local Innovation absorption capacity for in-licensed IP***
- ***2) Ingredients, including Adjuvants, to be sourced locally and drive the advanced manufacturing strategies in some PRIs***
- ***3) Government Market off takes (Advanced Markets Commitments) by the Department of Health and the private sector through the NHI and other policy levers sufficient to create conditions for development of local Industrial champions (R10 billion market)***

Support for a capable state and government decision making

Science to inform policy

- Formation of the National Policy Data Observatory.
- The NPDO played a significant role in informing policy decisions during the Covid-19 Pandemic for instance in measuring people's attitudes to the disease, and in monitoring the vaccine manufacturing programme.
- The data can also be used to assist in the rehabilitation and remediation of areas devastated through the recent floods in KZN.
- A Memorandum of Understanding with the CSIR Implementation Unit has been signed around using data analytics to assist in strengthening cyber security.

The District development model

DSI DDM: Impact Areas

Impact Area (1)

Life Changing Opportunities

-skills development;

-training, innovation leadership skills;

-entrepreneurship support;

-digital skills;

-incentives and support for tech start ups, innovation SMME's, cooperatives;

-support for unemployed youth, women

-youth innovation incentive schemes

Impact Area (2)

Economic Competitiveness and Recovery

-local systems of innovation and production;

-circular economy;

-innovation for local economic development;

-innovation support for existing economic sectors such as mining, agriculture, tourism and manufacturing;

-support for new sources of growth;

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Impact Area (3)

Access to Basic Services and Infrastructure

-basic service delivery such as water, energy, human settlements, education, waste management, health and sanitation;

-innovation infrastructure;

-community innovation, science support centres;

-community broadband connectivity;

Research infrastructure;

-support for new sources of growth;

-smart cities, smart settlements and neighbourhoods

Impact Area (4)

Societal Problems, Challenges and Decision Support

-youth in drugs;

-environmental pollution and degradation;

-climate change and drought;

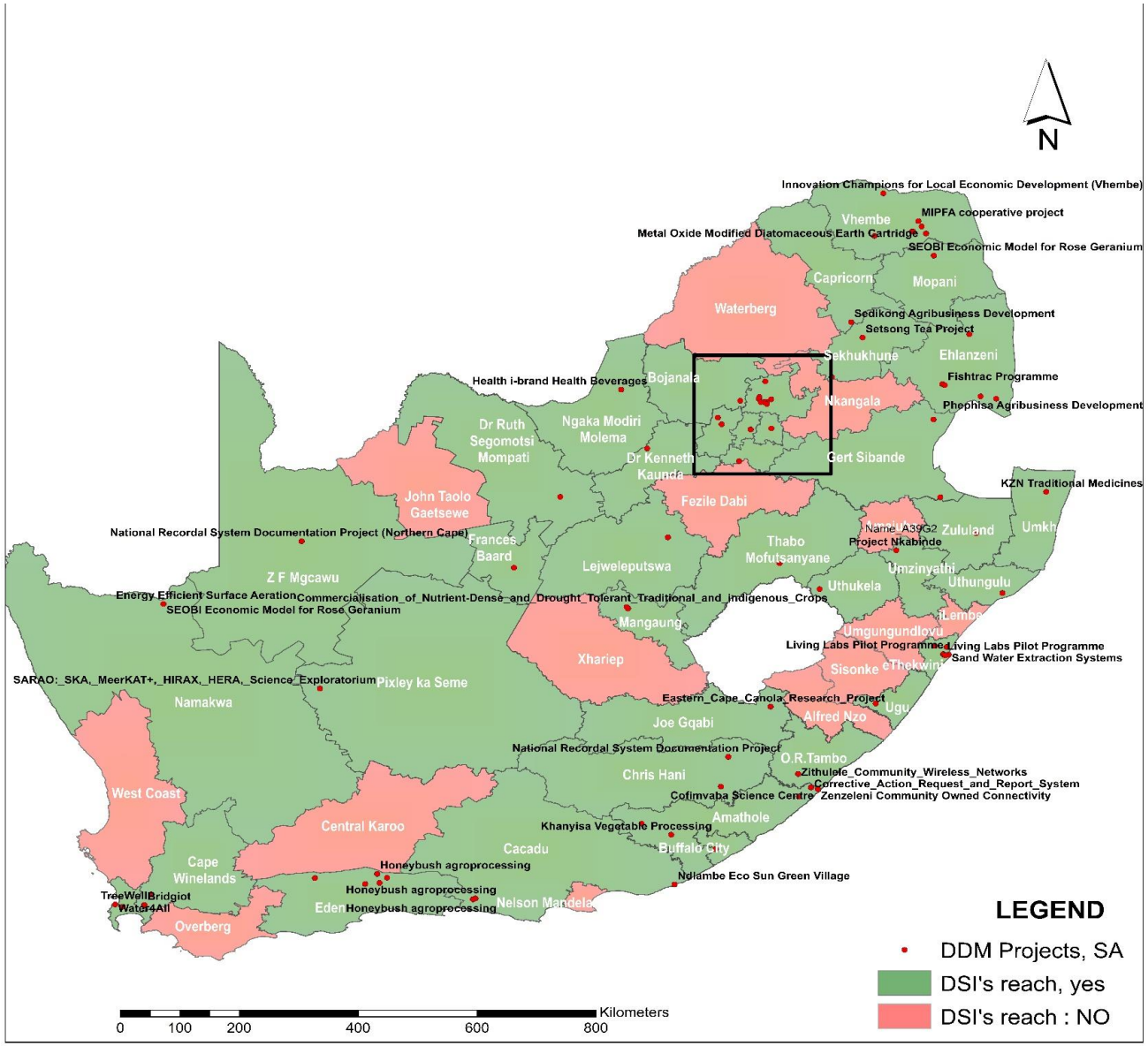
-safer cities and communities;

-social development;

-decision support tools;

-policy research

Geographic Footprint of DSI Projects Across 9 Provinces

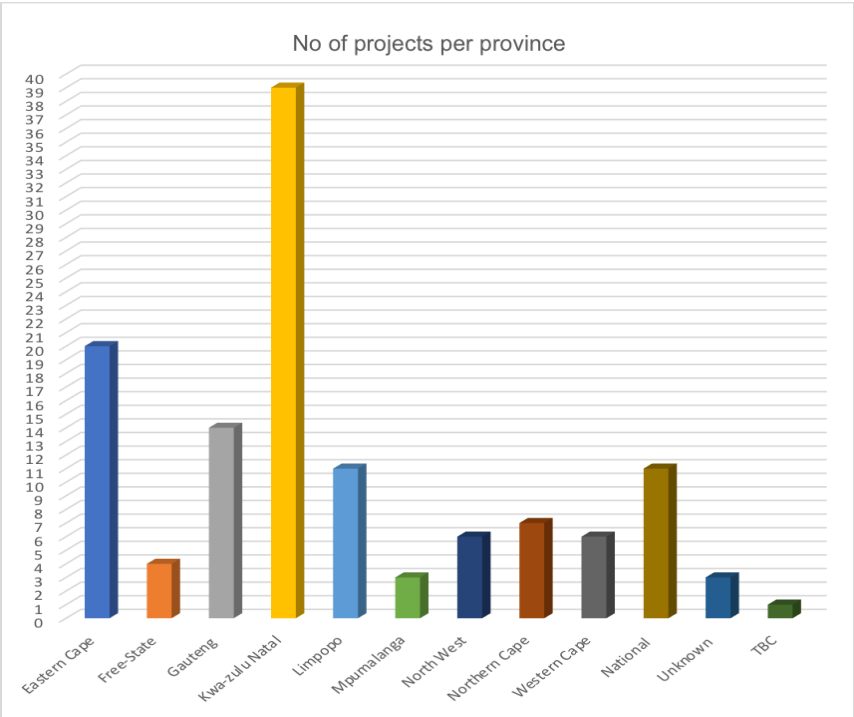


DSI'S ACTIVE PROJECTS IN 2020/21 IN DISTRICTS

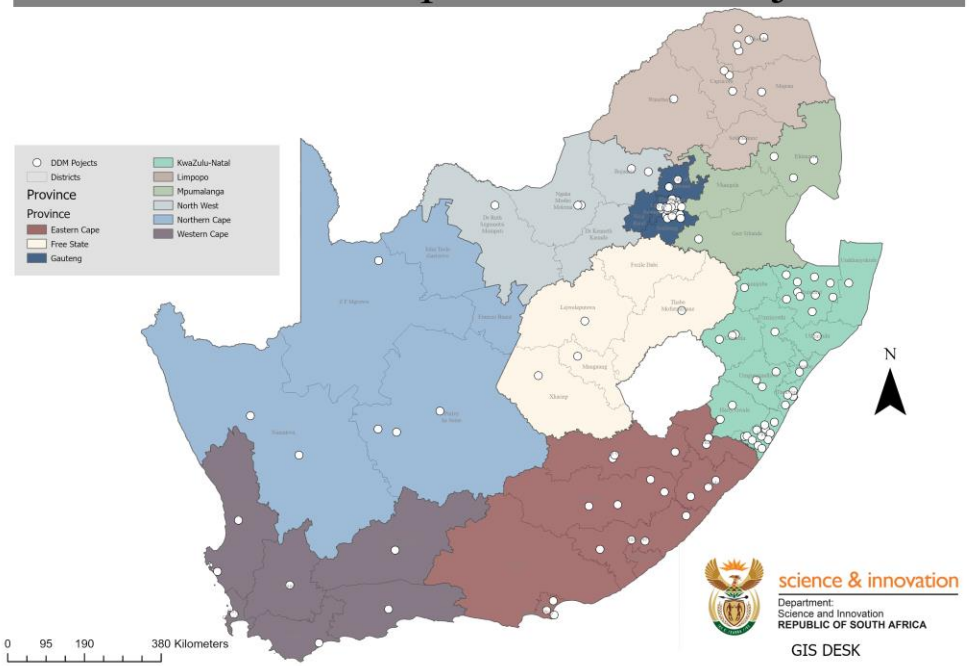
Amathole -Health i-brand Health Beverages X2
Amathole -Zenzeleni Community Owned Connectivity
Amathole -Sand Water Extraction Systems
Buffalo City -East London Regional Innovation Networking Platforn
Cape Winelands-Stellenbosch Network
Cape Winelands-Winetech
Capricorn -Sedikong Agribusiness Development
Chris Hani -Cofimvaba Science Centre
CPT-TreeWell
CPT-Enhanced Energy Harnessing Mechanism
CPT-Water4All
CPT-Shear Separation Flotation Technology Demonstrator
CPT-Living Labs Pilot Programme
CoT- Phedisanang Cooperative Agribusiness Development
CoT- Mothong African Heritage Project
CoT- Photo Voltaic testing centre
CoT- NETFA facility
CoT- Loo Afrique
CoT- Slide-On Gutter Technology Demonstration
CoT- Drinking water and saleable products from mine water
CoT- Swallowing Toilet
CoT- Biomanufacturing Industry Development Centre
CoT- Nanomaterials Industry Development Facility
CoT- Photonics Prototyping Facility
CoT- Regional Innovation Networking Platform
CoT- National Recordal System Documentation Project
Ehlanzeni -Phephisa Agribusiness Development
Ehlanzeni -Phephisa Agribusiness Development
Ekurhuleni- Gibela Manufacturing Centre
Ekurhuleni- Look see Do
Ekurhuleni- Precious and Semi-Precious Metals Value Recovery
Ekurhuleni- Water Evaporation Experiment
eThekwini - Living Labs Pilot Programme X2
eThekwini - Science, Technology & Innovation Park
eThekwini - Sector Innovation Fund with the Sugar Milling
eThekwini - Biorefinery Industry Development Facility
eThekwini - Research Institute
eThekwini - SA Sanitation Technology Demonstration Programme
Frances Baard- NC Regional Innovation Networking Platform
Garden Route-Honeybush agroprocessing X3
Garden Route-National Recordal System Documentation ProjectX
Gert Sibande- National Recordal System Documentation Project X
Lejweleputswa-Regional Innovation Networking Platform
Mangaung - Nosetsa: Irrigation System Using Machine Learning
Mangaung - Versatile integrated site Seletion Tool
Mbombela - Fishtrac Programme
Mopani - SEOBI Economic Model for Rose Geranium
Namakwa- SEOBI Economic Model for Rose GeraniumX2
National -Grassroots Innovation Programme
Nelson Mandela Bay - Energy Efficient Surface Aeration
Ngaka Modiri Molema -Health i-brand Health Beverages
Sekhukhune -Setsong Tea Project
Stellenbosch -Bridgiot
Umkhanyakude - KZN Traditional Medicines
Umzinyathi -Project Nkabinde
Vaal -Casting Simulation Network
Vembe-MIPFA cooperative project
Vembe-Metal Oxide Modified Diatomaceous Earth Cartridge
Vembe-Innovation Champions for LED X4

DSI's District Development Model Projects Nationally

DDM PROJECTS ACCORDING TO IMPACT AREA												
Impact Area 1	Eastern Cape	Free-State	Gauteng	Kwa-zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	National	Unknown	TBC
	9	4	3	11	3	1	2	3	4	3		
Impact Area 2	Eastern Cape	Free-State	Gauteng	Kwa-zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	National	Unknown	TBC
	10		7	18	6	1	1	4	1	3	2	1
Impact Area 3	Eastern Cape	Free-State	Gauteng	Kwa-zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	National	Unknown	TBC
	1		4	9	2	1	3			3		
Impact Area 4	Eastern Cape	Free-State	Gauteng	Kwa-zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	National	Unknown	TBC
	1								1	2	1	



District Development Model Projects

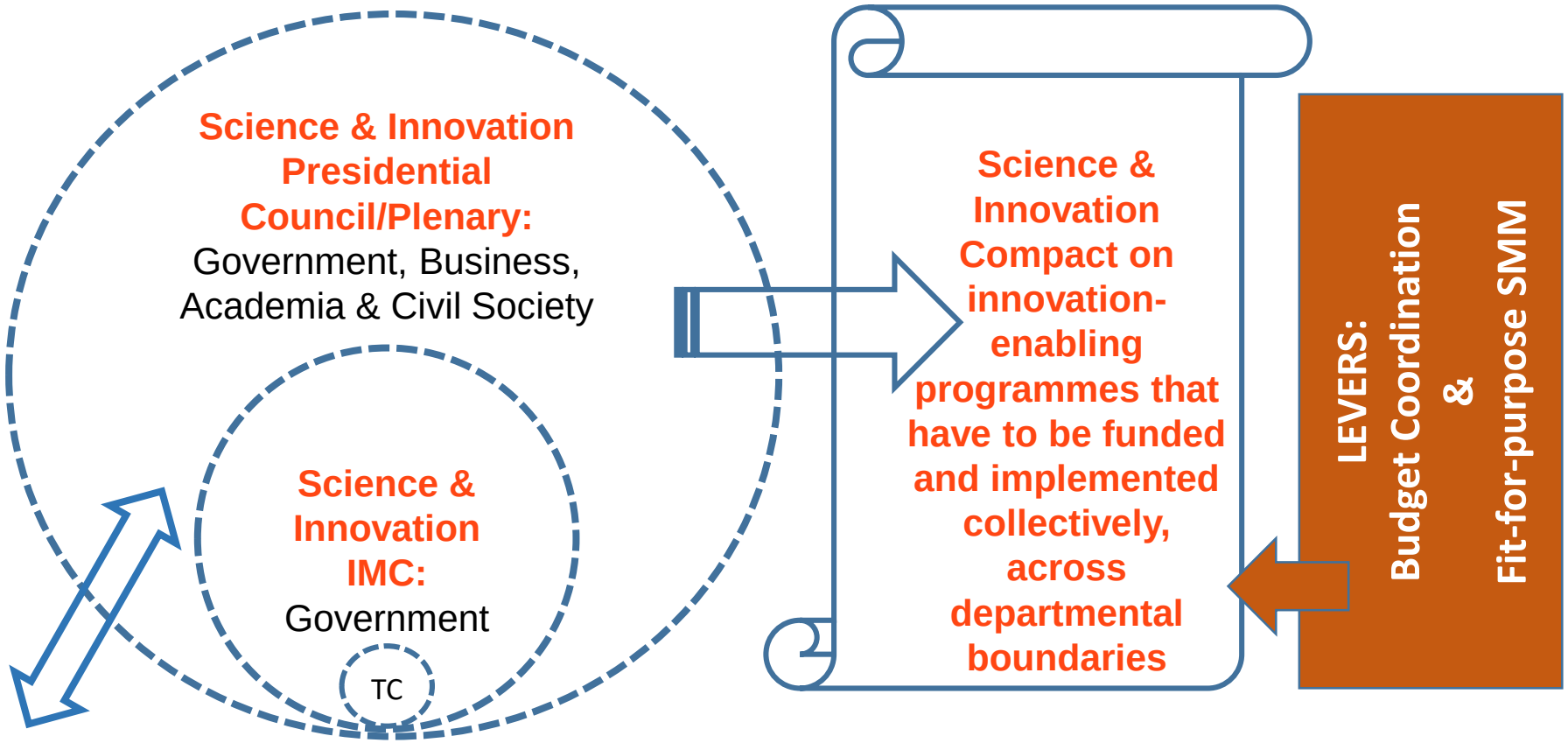


Enablers for the implementation of the Decadal Plan

Science & Innovation coherence and coordination

Structures for Consultation & Decision making

Topics/Contents of Consultations & Decisions



TC = Technical Committee of DGs.

Innovation and Skills Compact: Purpose

- Ensuring policy coherence and certainty related to innovation, the absence of which negatively impacts on business and foreign investment in South Africa

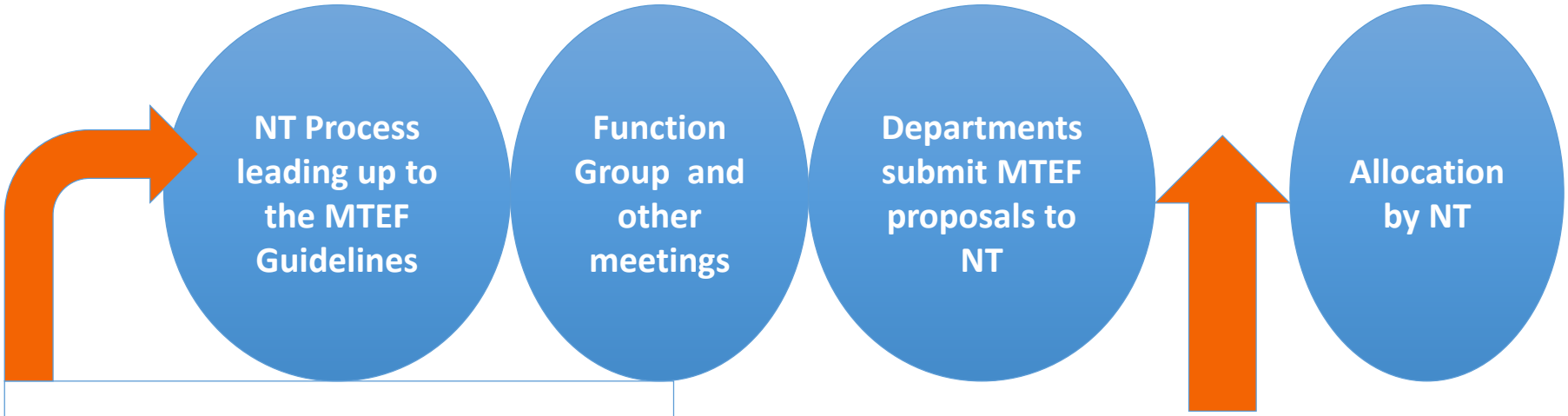
- Ensuring synergy among, rather than the duplication of initiatives and incentives, which wastes resources and negatively influences the contribution of innovation to addressing South Africa's priorities

- Ensuring commitment from the relevant NSI actors to working together to enhance innovation performance, and therefore also to pooling their resources (funding, knowledge and systems)

Proposed priorities of the Innovation and Skills Compact

- Specifically targeted education and skills to support innovation
- Arresting IP leakage from publicly funded R&D through increased support for commercialisation
- Public procurement of locally developed technologies
- Improving the capabilities across government to support innovation, as well as to increase the spatial footprint of innovation in SA in line with the District Development Model

STI Budget Coordination Mechanism



(1) DST / NACI analysis to identify issues and funding priorities for NSI
(2) Report and briefing to NT
(3) Priorities to be included in the MTEF Guidelines to guide R&I funding requests by departments

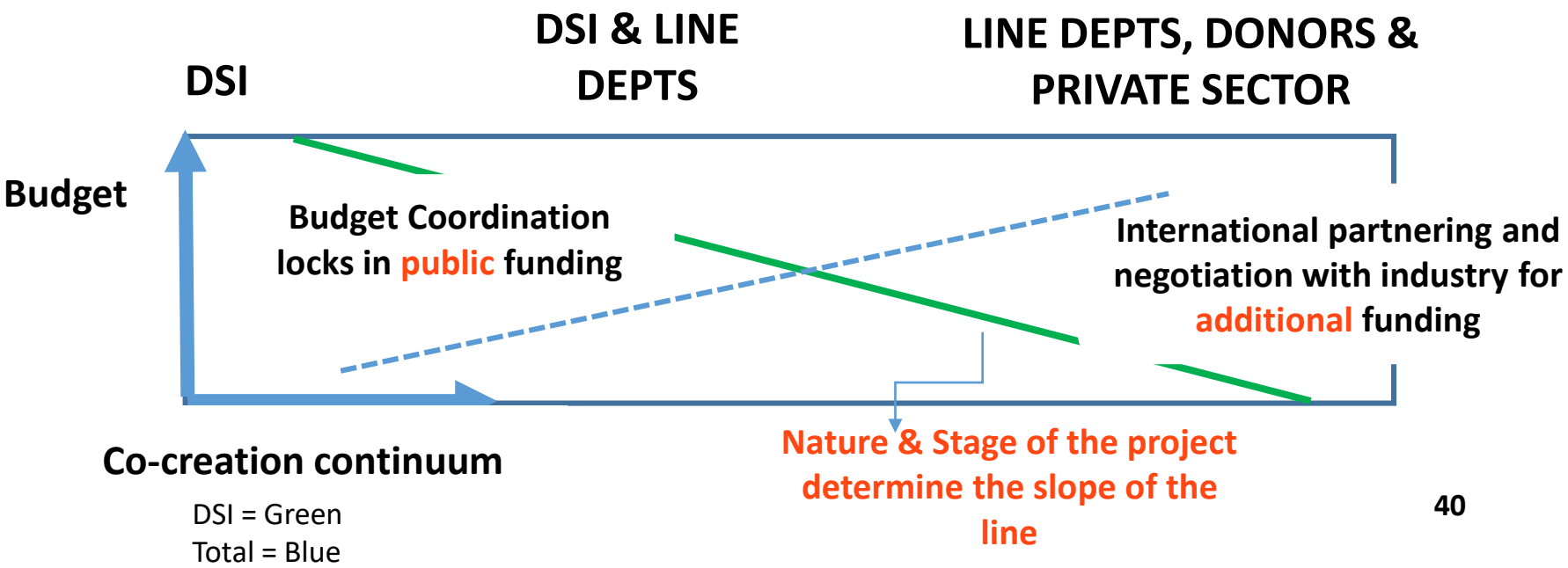
(1) DST / NACI analyses the MTEF requests for R&I funding received by NT
(2) Identifies cross-cutting issues facing departments e.g. aging equipment
(3) Report and briefing to NT with recommendations on allocations

Ongoing data gathering and analysis by DST/NACI and other specialist centers to inform M&E of funding productivity

SMM for Science and Innovation across government and sourcing funding

Emerging areas (DST Should..)	Sector specific (DST May...)	Mature areas (DSTShould not...)
• Take the lead • E.g. biotech, nanotech etc.	• Be involved but not be the leader e.g. health, agric, minerals • Sector Departments lead	• Not be involved, but know what goes on • Standard technology-based services E.g. Weather services

DST responsibility



STI Budget Allocation Challenges

- Inadequate support for R&D activities (mostly ad hoc) and funding allocated for STI moved to other priorities
- Not all S&T-intensive national departments allocate staff to plan and manage their STI work, resulting in some not allocating adequate budgets
- Departments re-allocate STI budgets to other priorities later in the year
- Public research organizations increasingly under financial pressure to do "consulting" rather than investing sufficiently in basic research, infrastructure and HCD – eroding the capacity of the NSI

Budget Coordination progress

High-Level progress made since approval by the Cabinet:

- DG to DG meeting (NT/DSI & DPME)
- Setting up technical working groups with National Treasury (DDGs) on how to integrate the Public STI Budget Coordination Mechanism into the MTEC processes
- GERD to GDP Modelling working group to unpack numbers
- STI Baseline study was completed for evidence to inform the development of the Framework for Government R&D Budget Coordination. The study was done with the *NT's Government Technical Advisory Centre (GTAC) and the NT agreed to work with the DSI to enhance monitoring and evaluation of budgets for R&D*
- Engagements with NT/DPME to interface with the MTEC process (functional groups, TCF, Cabinet Lekotla etc.)
- Engagements with DPME on how to integrate STI priorities into the Mandate Paper
- STI budget coordination endorsed by IMC

Endorsement of the Budget Coordination mechanism by the IMC on STI

Endorsement of Public STI Budget Coordination Mechanism as an instrument in the MTEC and DPME processes to allow:

National, provincial and local departments to set aside appropriate percentage (%) of budgets for STI

Further tasks for the Budget Coordination process

- Advocacy/awareness for STI to engage with (national, provincial, local) departments - functional groups, TCF and other meetings
- Engagement with NT and DPME to finalize priorities for next MTEC (priorities adjusted annually as Mandate Paper changes)
- Engagement with NT budget office on STI template for next MTEC
- Instruction of % for STI in the Mandate Paper, an incremental approach proposed (model the Presidential Employment Stimulus approach)

Decadal Plan progress and highlights

Highlights (1)

- Cabinet approved the Decadal Plan for further consultation with government partners, the private sector and social partners (e.g. NEDLAC) in March 2021 – this consultation in nearing completion, only one bilateral with the civil society constituency of NEDLAC remaining.
- A major milestone was reached when the National Treasury agreed to the principle of STI budget coordination.
- The DSI has started integrating the implementation of the Decadal Plan priorities into Annual Performance Plans (APPs) of the Department and the entities e.g. workshopping the priorities with the CSIR.

Highlights (2)

- A draft framework for the Innovation Compact has been developed.
- The inaugural meeting of the Science and Innovation IMC took place on 25 November 2021.

Stakeholders consulted in developing the Decadal Plan

During the development of the White Paper on STI, and the Decadal Plan, the following were consulted:

- STI-intensive government departments
- Industry associations related to the NSI
- The National Treasury
- The Department of Planning, Monitoring and Evaluation
- Civil Society
- Science councils
- Higher Education Institutions
- NEDLAC

Issues emerging from consultations

- **Coordination**
  - greater and structured institutionalization between business and government departments to enable the development and implementation of sector-led RDI STI plans
  - formulate a co-investment framework that would enable businesses to derive a return on investment for their RDI investments
- **Budget**
  - How is the DP going to be implemented in the current constrained fiscal environment?
- **Skills development and job creation**
  - The importance of entrenching Science, Technology and Innovation (STI) as part of the basic and tertiary education curricula.
- **Labour related issues**
  - There should be "a balancing exercise" aimed at minimizing job losses in the prioritized sectors whilst, concomitantly, developing a next-generation high-tech workforce.
  - Safety considerations as mining is modernised

Inaugural meeting of the Science and Innovation IMC

Programme

25 November 2021
12:00 to 14:00
Microsoft Teams

Chair: Dr BE Nzimande, Minister of Higher Education, Science and Innovation

12:00	Welcome and introduction of IMC members by the Chair
12:10	Background on the Interministerial Committee on STI by the Chair
12:20	Presentation of the draft terms of reference for the IMC led by the Chair
12:40	Presentation on the Decadal Plan by the Director-General of Science and Innovation
13:10	A case study on the role of innovation in socio-economic development by the Chair of the National Advisory Council on Innovation
13:25	Discussion and decisions on –

- the draft terms of reference for the IMC
- the proposed STI priorities to address Societal Grand Challenges
- the revised Strategic Management Model and the budget coordination mechanism for STI
- the Innovation Compact

14:00	Way forward and closure by the Chair

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STAY SAFE
VACCINATE TO SAVE SOUTH AFRICA
TOGETHER WE CAN BEAT CORONAVIRUS

Excellent attendance of the inaugural Science & Innovation IMC

- 17 Ministries were invited, 12 attended (at the level of Minister, Advisors, DG or DDG).
- The table below shows the level of attendance: 8 Ministers attended, 8 DGs and 4 DDGs and/or advisors.

MINISTERS	DIRECTORS-GENERAL	ADVISORS AND DDGS
Higher Education, Science and Innovation (incl. Deputy Minister)	Science and Innovation	Science and Innovation
Trade, Industry and Competition	Higher Education and Training	National Treasury
Communications and Digital Technologies	Trade, Industry and Competition	Centre for Public Service Innovation
Forestry, Fisheries and Environment	Public Enterprises	International Relations and Cooperation
Public Works and Infrastructure	Public Works and Infrastructure	
Public Service and Administration	Planning, Monitoring and Evaluation	
Cooperative Governance and Traditional Affairs	Communication and Digital Technologies	
Public Enterprises	Small Business Development	

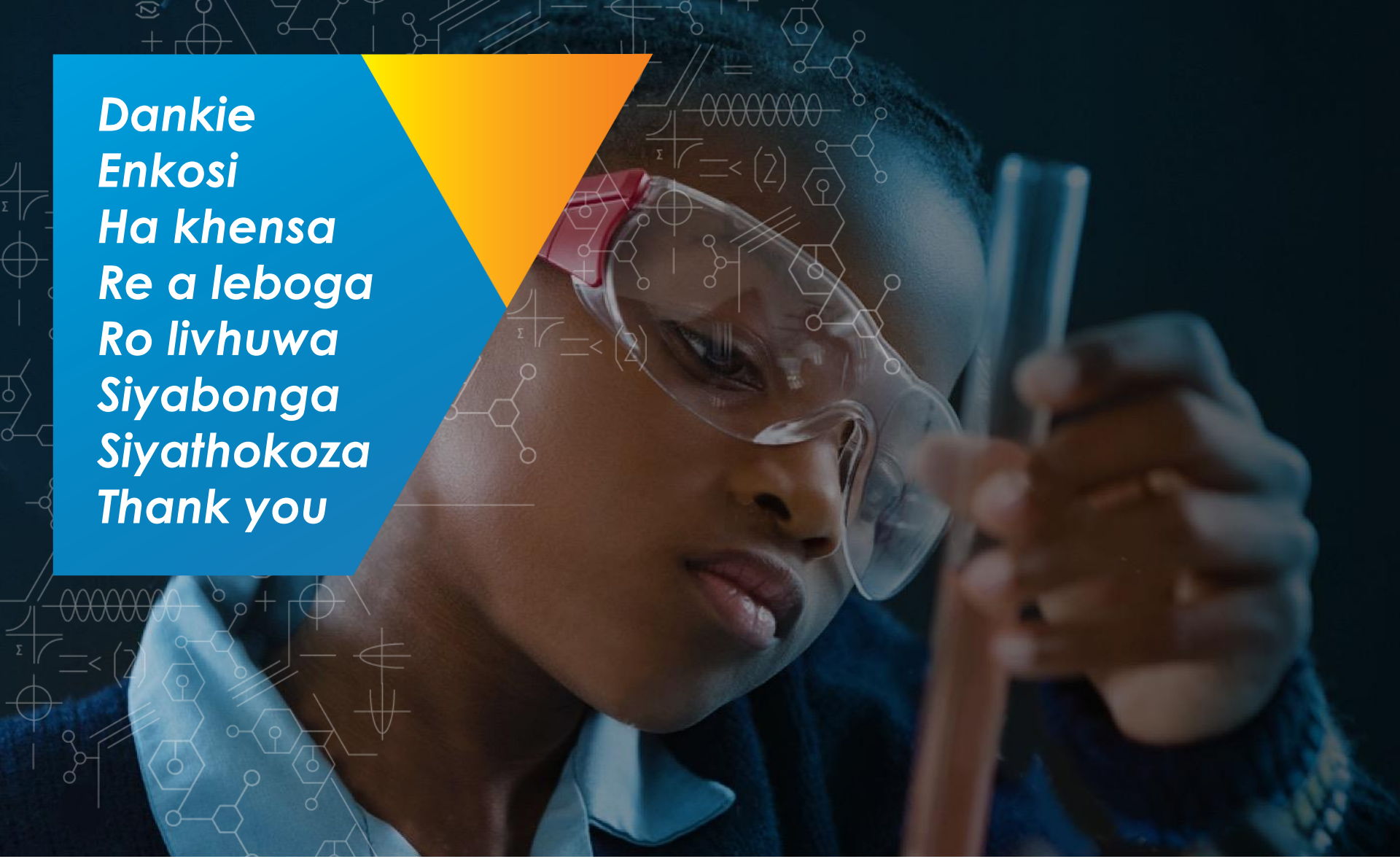
Next steps in the implementation of the Decadal Plan

Proposed agenda items for the second IMC meeting

- Finalisation of the ToRs of the IMC
- Feedback from consultations with the social partners at NEDLAC
- State of readiness of the SGCs and proposed institutionalization
- Update on the STI Budget Coordination
- Update on the Innovation and Skills Compact

Roadmap to the STI Presidential Plenary

Activity	Timelines
Tabling of the Decadal Plan to FOSAD MANCO	October 2022
Hosting of the 2nd IMC	End October 2022
Tabling of the final Decadal Plan to Cabinet	November 2022
STI Presidential Plenary	March 2023



Dankie
Enkosi
Ha khensa
Re a leboga
Ro livhuwa
Siyabonga
Siyathokoza
Thank you

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Annexure: A
Issues raised at the IMC

Consultation: Specific issues (1)

Coordination

- The need for greater and structured institutionalization between business and government departments to enable the development and implementation of sector-led RDI STI plans
- The formulate a co-investment framework that would enable businesses to derive a return on investment for their RDI investments
- Practically, demonstrate the whole of government approach to innovation

Consultation: Specific Issues (2)

Budget

- How is the DP going to be implemented in the current constrained fiscal environment?
- The DSI should be smart and leverage different SETA budget allocations to fund the human capital development needs of the DP

Consultation: Specific Issues (3)

Skills development & Job Creation

- The importance of entrenching Science, Technology and Innovation (STI) as part of the basic and tertiary education curricula.
- Building a sense of urgency in skills development to enable the successful implementation of the DP imperatives.
- Technical Vocational Education and Training (TVET) colleges offer a fertile ground for the DP technical skill development
- The circular (green) economy STI Plan can unlock huge job creating opportunities in the green economy sector.

Consultation: Emerging Issues (4)

Labour-related issues

- The high-tech approach proposed in the DP should be "a balancing exercise" aimed at minimizing job losses in the prioritized whilst, concomitantly, developing a next-generation high-tech workforce.
- The proposed high-tech modernization approach for mining should also focus on improving safety levels in the sector.

Annexure: B
Issues raised at the IMC

Feedback from the IMC (1)

- **Issues raised by IMC Ministers**
  - Sharpen focus on supporting commercialisation of SA's IP to support industrialisation.
  - Highlight the importance of building local capabilities.
  - Highlight the role of logistics and infrastructure to link to the African Free Trade Area.
  - Include the focus areas of the Decadal Plan in the TORs.
  - Dept. of Labour and Employment should be a standing member of the IMC, as innovation can both create and reduce employment and labour strategies needed.

Feedback from the IMC (2)

- The importance of integrating STI into the long-term planning of government is clear, and should be highlighted.
- South Africa needs a skills development and training Master Plan. It is necessary to quantify the skills needed per area, develop realistic quantitative targets and assign responsibilities to appropriate departments and role players. But skills development is a cross-cutting priority and so all government departments need to contribute to the targets as appropriate.
- There is a need to create learning opportunities for South Africans through study tours of high-performing STI-intensive countries.

Feedback from the IMC (3)

- The core team of the IMC should include the DPSA to assist with engendering an innovation mindset and skills across government.
- The role of the Centre for Public Service Innovation can also has a role to play in creating an innovation-enabled state.
- The objectives of the IMC should also include reference to how STI can contribute to South Africa meeting her international obligations e.g. on the Sustainable Development Goals.
- A central repository is needed where government can collect all the STI-related learning it derives from international visits. This input was made in support of Minister Dlamini-Zuma's input on making provision for learning from international partners.

Feedback from the IMC (4)

- The Department of Transport is pivotal to an innovation-enabling environment, e.g. to ensure access to markets and functioning ports for international trade – and will be included in IMC.
- Similarly, the DPSA will be included in the IMC.