



# **The role of science, technology and innovation in sustainable and inclusive social, economic and environmental development**

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# Talk Outline

- ❖ **Current Challenges**
  - ❖ **STI policy and Economic Growth**
  - ❖ **What has worked ... and not worked – The View from South Africa**
  - ❖ **The Advent of 4IR and its Implications**
  - ❖ **Towards Inclusive Innovation Policies**
  - ❖ **Envisaged Role of the NSI in the Digital Age**
  - ❖ **Proposed Way Forward**
  - ❖ **Summary and Conclusion**
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# Context

## Current Economic Challenges In South Africa

- Addressing multi-decadal legacy of Economic Exclusion of majority of South African citizens;
- Pervasive Triple Challenge of: Poverty, high Un-employment and Deepening Inequality;
- Moribund Economic Growth;
- Youth Unemployment;
- Education system not fit for purpose for a modern industrial economy; **AND NOW**
- Emergence of **COVID-19**, the single biggest catastrophic event in our lifetime and its impact on an already dire economic situation.

# STI Policy and Economic Growth

**STI policies have powered economic growth both in the developed North and developing South by creating an environment that enhances:**

- Productivity;
- Competitiveness and
- Job Creation.

*See for example Planes-Satorra & Paunov, 2017*

# What has worked....

Policy and  
legislative drive  
aligned to the  
needs of a  
Developmental  
State post 1994

## **Policy and Legislation**

- White Paper on Science and Technology (RSA, 1996);
- National Research and Development Strategy;
- IPR Act of 2008;
- Technology Innovation Agency Act of 2008;
- Higher Education Act of 1997.

## **New Institutional Arrangements and Focus**

- Small Enterprise Development Agency (SEDA);
- Industrial Development Zones (IDZs);
- Technology Innovation Agency (TIA);
- DFI focusing on “New Economy” Development Funding e.g. green economy, clean energy etc.

# What has not worked so well....

Policy and  
legislative drive  
aligned to the  
needs of a  
Developmental  
State post 1994

## Shortcomings in Implementation and Execution

**Poor policy coordination and alignment in the delivery of support services across the respective Government Departments and Agencies**

**Results:** Sub-optimal functioning of the instruments with respect to their stated objectives leading to duplications and waste of limited resources

*See Phaho and Mazwai, 2011.*

# Towards Inclusive Innovation Policies

## Need for Formulation and Implementation of Effective Inclusive Innovation Policies for South Africa

Inclusive innovation policies have three broad objectives:

- **Industrial inclusiveness** – specifically targets support for less innovative firms by strengthening their innovative capacities;
- **Territorial inclusiveness** – target-lagging and less innovative regions to narrow performance gaps with leading innovation regions; and
- **Social inclusiveness** – seeks broader participation by including marginalized communities.

# The Advent of 4IR and its Implications

The advent of 4IR holds the promise of **a more inclusive, innovative and resilient society** but...

- Fear of **massive job losses in emerging economies** such as South Africa with machines replacing humans especially in key economic sectors e.g. Service industries (e.g. Banking), Mining etc.
- **Furthermore, 4IR could be used to:**
  - (i) Limit access to information, especially in less democratic societies;
  - (ii) Negatively influencing political election outcomes.

# South Africa & the Digital Age

How do we ensure a “Just Transition” for South Africa to ensure we capitalize on the economic benefits promised by the advent of 4IR?

- Invest in human capital development focusing on **SET with a specific focus on ICT**;
- Enhance government **policy coordination** to ensure strong alignment between the country’s **STI policies** and its **Economic Development Agenda**;
- Implement **prudent public policies** to facilitate **Innovation, Entrepreneurship** and **Infrastructure Development**;
- Establish mechanisms to enhance **active participation of disadvantaged groups** to foster social mobility and inclusion;
- Enable **easier access to relevant skills development opportunities** to unemployed youth to enhance their participation in the more productive activities of the economy.

# NSI in the Age of Covid-19 and other Natural Disasters

**Key Components of the NSI (Universities, Science Councils etc.)** will have to shift to the so-called **Mode 3 of Knowledge Production** which puts a strong emphasis on **Interdisciplinary** and **Transdisciplinary** knowledge where different and unrelated sectors worked together to find solutions for emerging global crises such as Covid-19.



# Summary and Conclusion

**The overarching objectives of a Nation's Inclusive Innovation Agenda should include:**

- Enhancing **access to innovation support instruments**, especially amongst marginalized communities;
  - Orienting innovation activities to also address **societal needs**;
  - **Quality** and **relevant education** to enhance participation amongst marginalized or disadvantaged communities;
  - **Enhancing awareness** of existing innovation policies and instruments to facilitate broader participation
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