



**National System of  
Innovation: RSA experience**



**science & innovation**

Department:  
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# Introduction

## Box 1

### National innovation systems: definitions

A national system of innovation has been defined as follows:

- "... the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies." (Freeman, 1987)
- "... the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state." (Lundvall, 1992)
- "... a set of institutions whose interactions determine the innovative performance ... of national firms." (Nelson, 1993)
- "... the national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country." (Patel and Pavitt, 1994)
- "... that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies." (Metcalf, 1995)

National Innovation Systems. OECD, 1997

*"Science creates conditions for economic and national development, and raises the prestige of a country in the modern world. The most important goal of SET policy is to achieve results which in the near future will support the process of social and economic transformation, and in the long run will ensure economic growth and social development of the country, by making the most of resources set aside for scientific research and development. To reach this goal, it will be essential to link science effectively with other areas of social and economic activity, and with education in particular."*

White Paper on Science & Technology, RSA, 1996

This White Paper sets the medium- to long-term policy direction for the NSI. It is informed by analysis of the evidence from a number of reviews of the NSI, experience gained in the implementation of STI policy over the past 20 years, and consultation with NSI partners – including both state actors such as STI-intensive government departments, universities and science councils, and non-state actors such as civil society, labour and business.





White Paper on Science, Technology & Innovation, RSA, 2019

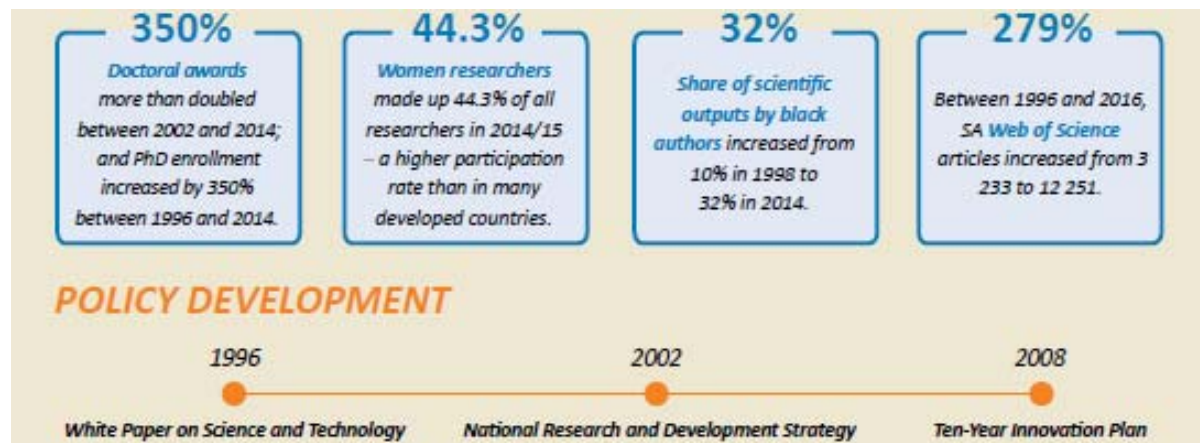
# The NSI-RSA

- 1996 **White Paper on Science & Technology**
- Put forward concept of NSI
- 2002 **National Research & Development Strategy**
- Department of Science & Technology (DST) established
  - Basis for NSI
- 2008 **Ten-Year Innovation Plan**
- Response to OECD review of NSI
  - Intellectual Property Rights Act
  - Establishment of Technology Innovation Agency
  - Establishment of South African National Space Agency
- 2019 **White Paper on Science, Technology & Innovation**
- Name change from DST to Department of Science & Innovation (DSI)
- 2022 **Science, Technology & Innovation Decadal Plan**
- Climate Change & Sustainability Societal Grand Challenge
  - Future of Society Societal Grand Challenge
  - Future-proof Education & Skills Societal Grand Challenge



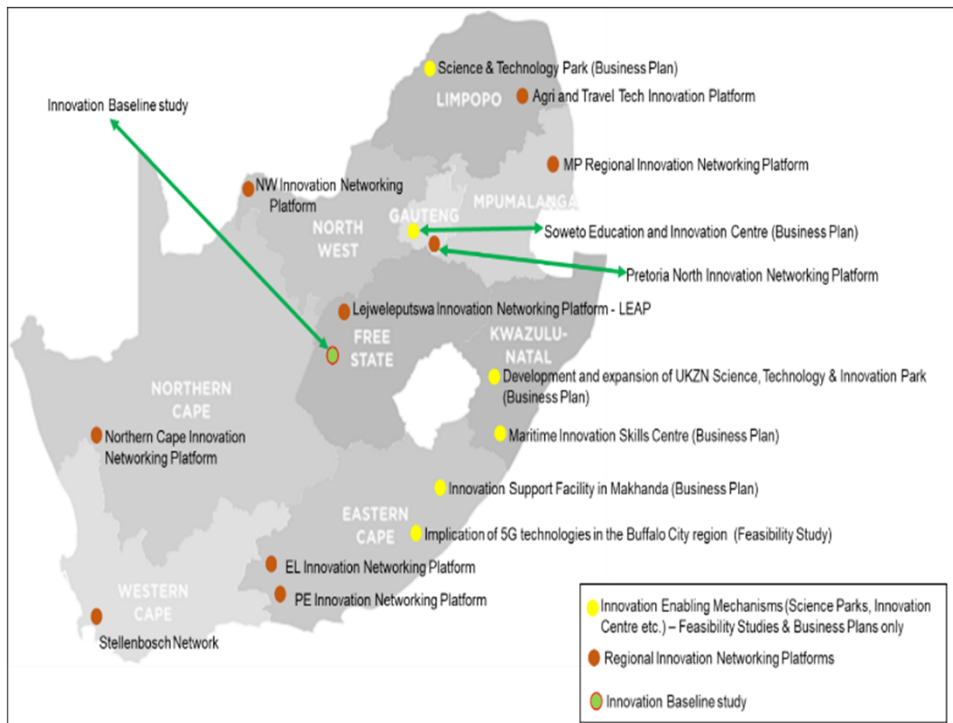
# The RSA NSI – 1996-2016

	 <b>NSI AS A WHOLE</b>	 <b>KNOWLEDGE AND HUMAN CAPABILITIES</b>	 <b>INNOVATION PERFORMANCE</b>	 <b>FINANCING</b>
+	New institutions e.g. TIA, SANSa and NIPMO. Deeper linkages e.g. DST/dti . Business support increased e.g. Sector Innovation Fund.	Publications increased. Increased participation of women and black people.	Growing uptake of STI. More tech start-ups. Grassroots focus.	Up to 2015, business funding increased. Public funding increased.
-	NSI fragmentation. Business linkages insufficient. Systemic M&E lacking.	Transformation incomplete. Infrastructure backlogs. Research focus insufficient.	No over-arching innovation policy. Innovation mostly flat.	GERD largely stagnant. Funding uncoordinated.



# The Regional Innovation Support Programme & Sector Innovation Fund

## RISP



## SIF

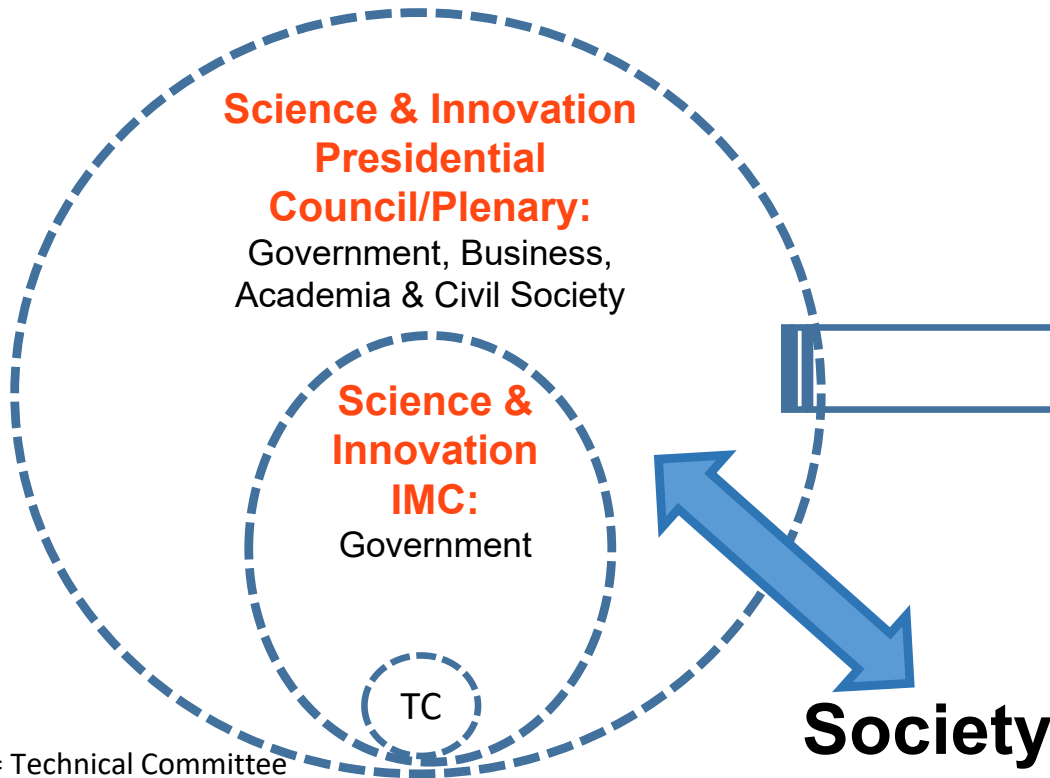
Table 1.1: List of funded industry associations

Industry association	Abbreviated name	Initiative/programme
South African Minerals to Metals Research Institute	SAMMRI	Mineral processing and beneficiation of minerals
Citrus Research International	CRI	Research on citrus crops
Marine Finfish Farmers Association of South Africa	MAFFSA	Marine aquaculture research for finfish farming
Paper Manufacturing Association of South Africa	PAMSA	Paper manufacturing
Forestry South Africa	FSA	Future plantation forests for the South African bio-economy
Sugar Milling Research Institute	SAMRI	Sugarcane bio-refinery research programme
Fresh Produce Exporters' Forum	FPEP	PHI programme
Marine Industry Association of South Africa	MIASA	Marine manufacturing innovation – boat building
Wine Industry Network of Expertise and Technology	WINETECH	Wine industry innovation

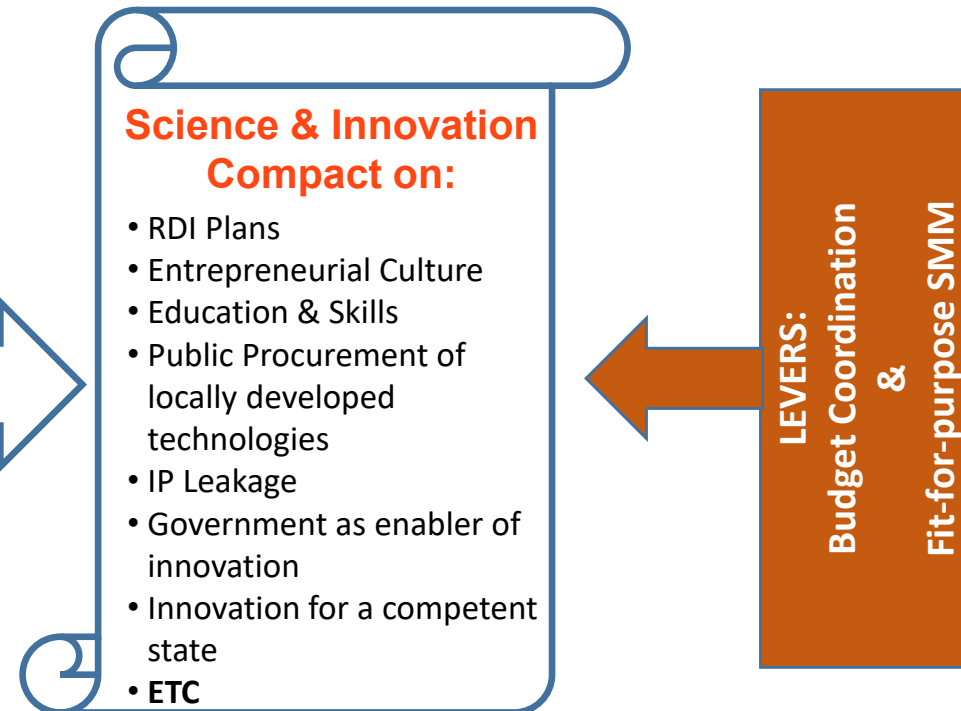
**Increased investment in RDI**  
 Industry co-funding: R107m  
 DSI Investment: R182m

# Improvements to the NSI

## Structures for Consultation & Decision making



## Topics/Contents of Consultations & Decisions



TC = Technical Committee of DGs.



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