



ICT RDI Roadmap

Enabling RDI Collaboration on Blockchain and AI

#BAC2020, Johannesburg

12 March 2020

Towards Digital Advantage:
Roadmapping South Africa's ICT Future

Presentation Outline

- ▶ Context
- ▶ ICT RDI Roadmap 2013-2023
- ▶ Opportunities for Collaborative Partnerships
- ▶ Blockchain RDI opportunities
- ▶ The Office of Digital Advantage (ODA)
- ▶ DSI funding instruments

CONTEXT: BENEFITING FROM DIGITALIZATION

The government DST/DSI's Mandate

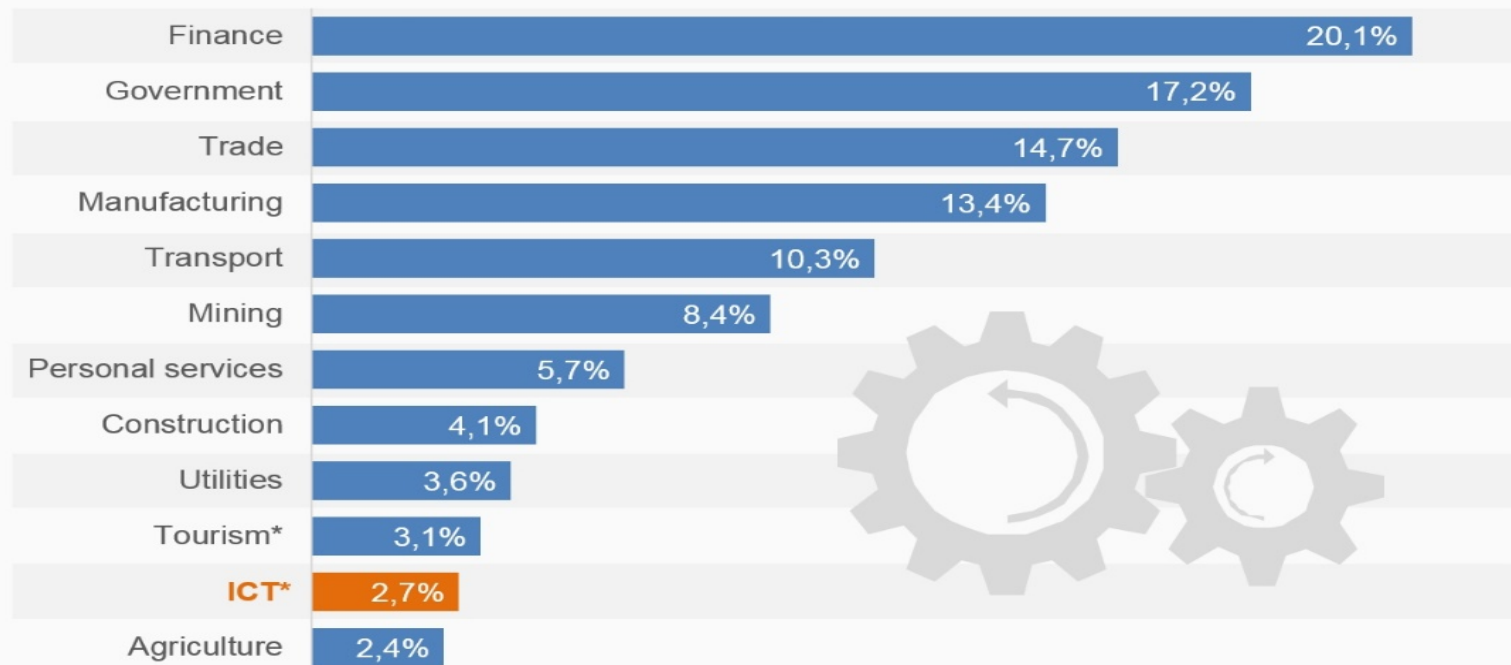
- ▶ Formulation of policies relating to Science and Technology (S&T).
- ▶ Address matters relating to the Scientific Advisory Committee to Cabinet (SAC-C)
- ▶ Promotion of new areas of S&T with special emphasis on emerging areas.
 - Conducts R&D through



South African ICT Sector Overview

The ICT sector is larger than the agriculture industry

Percentage contribution to South African economic activity, 2014



*Tourism and ICT are referred to as sectors as they are not listed as one of the 10 industry divisions in the international Standard Industrial Classification (SIC) system
Sources: Information and Communication Technology satellite account for South Africa, 2013 and 2014; Gross domestic product (GDP), Q4 2016

Source: StatsSA 2016

Underinvestment in RDI (ICT), in international comparison

2013 data, pa

	Population (million)	GDP \$Bn	GERD % GDP	ICT R&D as % GERD	ICT R&D as % GDP	ICT R&D Expenditure (\$Bn)	ICT Sector Size (\$Bn)
South Africa	52	350.6	0,78%	8,4%	0,065%	0,22	29
Brazil	200	2 246	1,3%	19,4%	0,46%	10,3	110
South Korea	50	1 305	4,2%	44,8%	1,93%	25,1	261
Australia	23	1 056	2,4%	15,9%	0,38%	4,0	129
Taiwan	23	475.3	2,3%	19,0%	1,85%	6,4	200

- ▶ South Africa spends close to 10% of GDP on ICT goods and services, of which **most are imported**
- ▶ ICT R&D intensity as a % of GDP has decreased from 0.12% in 2009 to 0.065% in 2013
- ▶ Government, universities and science councils have a keen interest in ICT RDI, but funding and current **spending on ICT R&D is limited** compared to other fields

To harness the socio-economic benefits of ICT and to be a player in ICT,

*we must **significantly** increase investment in ICT RDI*

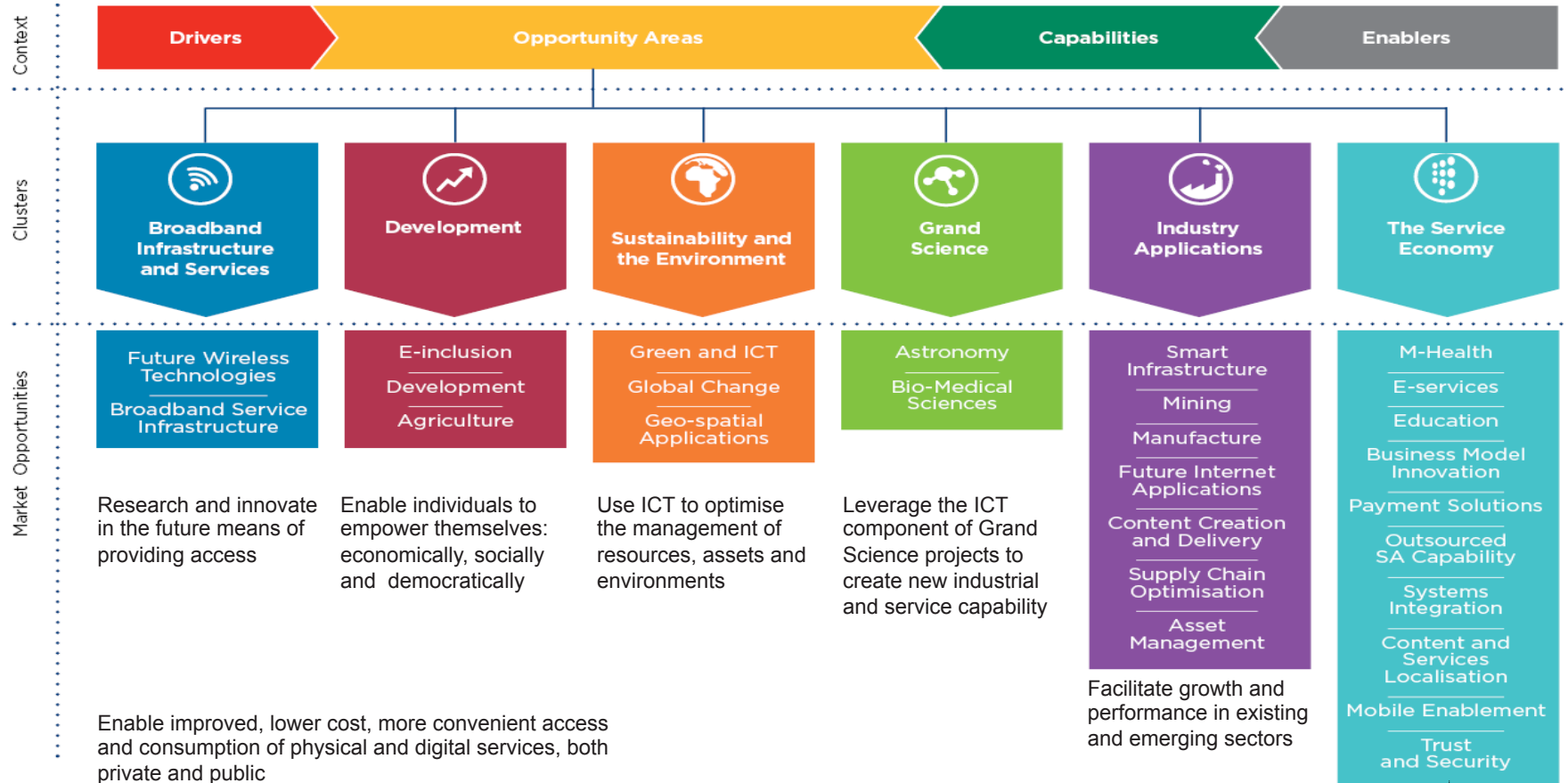
Two-fold strategic intent in developing the ICT RDI Roadmap

1. Enable **increased** public and private **investment in ICT RDI**:
 - ▶ **Identify critical areas** that must be developed to meet SA's socio-economic objectives
 - ▶ Identify ways to leverage R&D investments through **coordinating** research activities nationally and regionally
2. Provide a **framework to plan and coordinate technology development** internationally, nationally and regionally – to enable efficient and sophisticated investment decision-making

ICT RDI ROADMAP 2013-2023

Creating *Digital Advantage* for South Africa

A 6-point, Cluster-driven Strategy

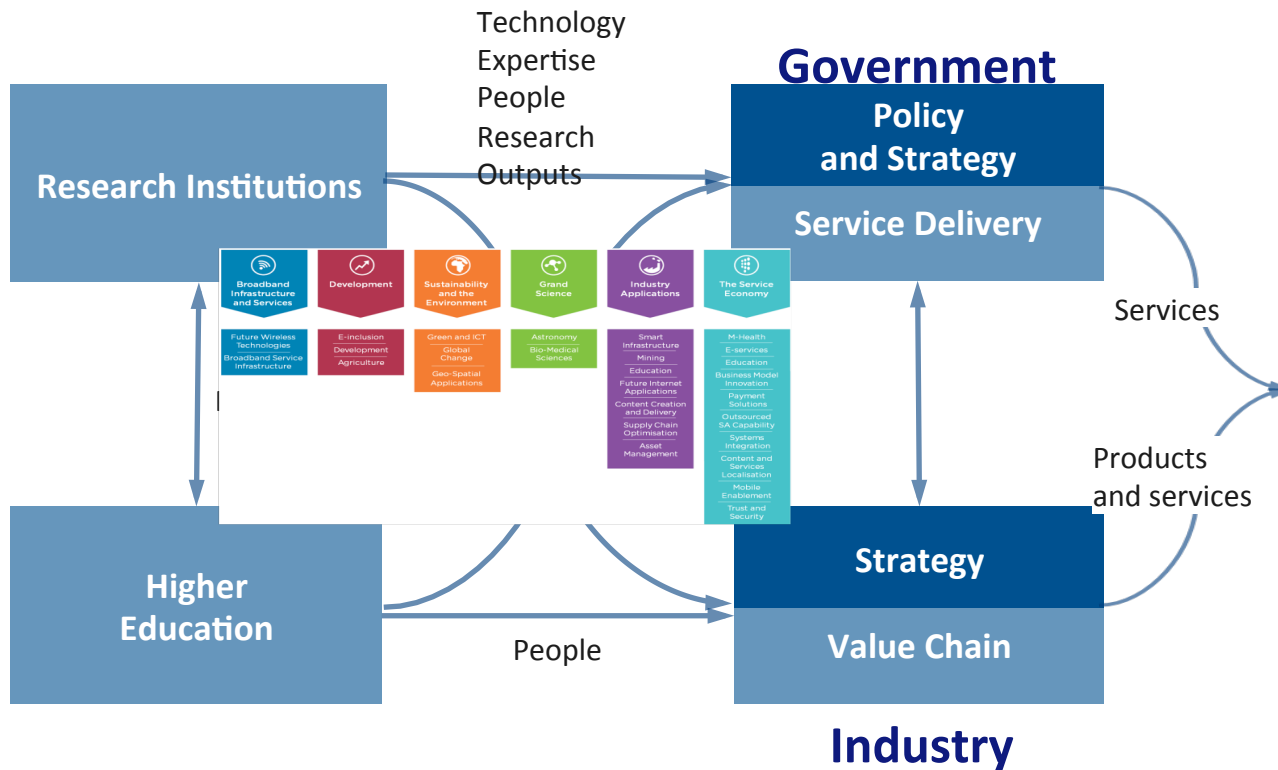


Investment focused on achieving system-level Outputs

Outcomes-based Objectives	Key Performance Indicator
Wealth Creation	Contribution to Economy p.a.
	New Businesses created
	Job creation
Technology Development	Products and services to market
	Technology packages
	Prototypes
Knowledge Generation	Registered Patents
	Patent Applications
	Publications
Human Capital Development	Post Docs
	PhDs
	Masters

OPPORTUNITIES FOR COLLABORATIVE PARTNERSHIPS

ICT Research & Innovation Ecosystem – focus is on Impact



National Outcomes

- ▶ Improved quality of basic education
- ▶ A long and healthy life for all South Africans
- ▶ All people in South Africa are and feel safe
- ▶ **Decent employment through inclusive economic growth**
- ▶ **A skilled and capable workforce to support an inclusive growth path**
- ▶ An efficient, competitive and responsive economic infrastructure network
- ▶ Vibrant, equitable and sustainable rural communities with food security for all
- ▶ Sustainable human settlements and improved quality of household life
- ▶ A responsive, accountable, effective and efficient local government system
- ▶ Environmental assets and natural resources that are well protected and continually enhanced
- ▶ Create a better South Africa and contribute to a better and safer Africa and World
- ▶ An efficient, effective and development oriented public service and an empowered, fair and inclusive citizenship

ICT RDI is already delivering impact on National needs and priority

Centre for AI Research (CAIR)

National System of Innovation in AI



Data Science vacation School (DSIDE)



BLOCKCHAIN RDI OPPORTUNITIES

Blockchain RDI – reality check (2018)

- ▶ Very little happening at a **university** level and many students are approaching industry for support
- ▶ The SA blockchain ecosystem is growing, and there is a tremendous amount of energy and enthusiasm, especially in the startup sector
- ▶ However, **limited skilled** technical blockchain resources
- ▶ The SA blockchain ecosystem is very keen to have government participation
- ▶ Although there has been world class work done by SARB, on the whole there is **very little knowledge regarding blockchain** and its potential in the rest of **government**
- ▶ There is HUGE potential for SA to make its mark at all levels

SANBA – National Blockchain Alliance

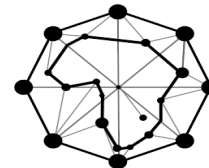
SANBA, as a mechanism for the DSI to support research, development and innovation in Blockchain/DLTs using an ecosystem approach. Members include government, business, academia and civil society.

4 main objectives:

1. Connecting.
2. Facilitating.
3. Catalysing.
4. Leveraging.

Potential Projects:

Digital Identity, eVoting, Food tracing & safety, SCM, Healthcare, eTendering etc.



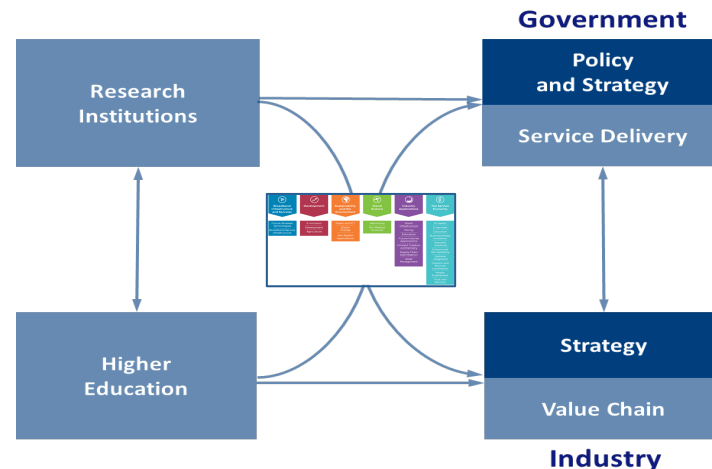
SANBA
South African National Blockchain Alliance

THE OFFICE OF DIGITAL ADVANTAGE

The Role of the Office of Digital Advantage (ODA)

The ODA has a mandate to:

- ▶ Provide **guidance, coordination and management** of the whole range of ICT RDI activities
- ▶ Help **strengthen the ICT RDI ecosystem** in South Africa, through participation by academia, research institutions, business and government departments
- ▶ Facilitate a **significant increase** in ICT RDI investments
- ▶ Enhance the **visibility** of the DST ICT RDI Roadmap and its implementation
- ▶ **Monitoring and evaluation** of relevant Roadmap information, to track investments, enable KPI assessment and map progress



ODA Website as a one-stop Shop for ICT RDI partners and beneficiaries

ODA website publishes:

- ▶ Open Research Calls (RDI and study funding opportunities)
- ▶ Map of funding instruments across the Innovation value-chain
- ▶ Info on International partners' collaboration workshops, and international travel opportunities



<http://DigitalAdvantage.co.za>

DSI FUNDING INSTRUMENTS

DSI's Funding Instruments and Interventions

Sector-Specific Innovation Fund

- ▶ SIF is part of Industry Innovation Partnership initiative under the government's Economic Competitive Support Package.
- ▶ Increased private sector investment in Research, Development and Innovation.
- ▶ SIF works as a **matching fund** (Rand for a Rand, between DSI and industry-partner / consortium).

R&D Enabling Infrastructure

- ▶ DST adopted a research, development and innovation (RDI) infrastructure framework, for funding:
 - Scientific Equipment;
 - Specialised Facilities eg Advanced Specialised Laboratories;
 - Global Infrastructure eg SKA;
 - Cyberinfrastructure eg SANREN;
 - High-end infrastructure: small, large and mega projects eg pilot plants, testing facilities, **sandbox**, technology demonstrators.

DSI's Funding Instruments and Interventions (continues)

R&D Tax Incentive Scheme

- ▶ Government offers R&D tax incentive under section 11D of the Income Tax Act (Act No. 58 of 1962) in order to promote private sector R&D investment in the country.
- ▶ The incentive allows any company undertaking scientific and or technological R&D in the country to deduct certain percentage of its R&D spending when determining the taxable income.

Equity-Equivalent Investment Plan

- ▶ EEIP targets multinational corporations that by nature cannot cede ownership, by offering them opportunity to invest in local skills development and R&D etc. in exchange for B-BBEE scores.
- ▶ Example: IBM investment in establishing the IBM Research Lab in Braamfontein jointly with Wits University, DTI and DST.
- ▶ Other MNC utilizing EEIP: Samsung, Microsoft, Amazon Web Services.



THANK YOU

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