PC4IR STRATEGIC IMPLEMENTATION PLAN (PC4IR SIP)

NATIONAL DEPARTMENTS

CONSULTATION PRESENTATION

MARCH 2021

STRICTLY CONFIDENTIAL

DCDT ROLE in 4IR IMPLEMENTATION

- PC4IR Report gazetted September 2020

- The Department of Communications and Digital Technologies (DCDT) has been tasked with the development of a PC4IR Strategic Implementations Plan (PC4IR SIP) to realise the recommendations of the PC4IR Report.

- The honourable, Minister of Communication and Digital Technologies - Stella Ndabeni-Abrahams, established the 4IR Project Management Office (4IR PMO) to develop the PC4IR SIP.

- The PMO has completed the PC4IR SIP consultative draft.

- Formal consultation on the PC4IR implementation has commenced since Jan 2021, will be ongoing for the next 4 Months.

- The primary role of the 4IR PMO is to *coordinate*, *facilitate* and *monitor* the 4IR programmes/projects.

- PC4IR Key Recommendations

- PC4IR SIP:

  - Objectives

  - Principles

  - Strategy, Structure and Approach

  - Methodology

- Recommended Programmes

- Next Steps towards 4IR Implementation

PC4IR KEY RECOMMENDATIONS

1 Investment in human capital;

2 The establishment of an artificial intelligence (AI) Institute;

3 The establishment of a platform for advanced manufacturing;

4 To secure and avail data to enable innovation;

5 Incentivise future industries, platforms and applications of 4IR technologies;

6 Build 4IR infrastructure;

7 The review and amendment (or create) policy and legislation;

8 Establish 4IR Strategic Implementation Coordination Council

*The vision of the PC4IR Strategic Implementation Plan is for South Africa to have a **globally competitive, inclusive and shared economy** with the **technological capability** and **production capacity** that is **driven by people** harnessing the Fourth Industrial Revolution to propel the country forward towards its social and economic goals.*

To implement the recommendations of the PC4IR through the development of a strategic implementation plan, which outlines the following:

- an **integrated 4IR technological country strategy**;

- a **time-framed implementation roadmap**;

- **a cross-sectorial 4IR programmes and institutional establishments**;

- **Detail the strategic interventions to be carried out towards achieving global competitiveness** in 4IR technologies within the high growth-potential economic sectors (agriculture, finance, mining, manufacturing, ICT, and STI);

- Identify **current internal DCDT programmes** positioning South Africa for 4IR readiness.

- **Identify key preliminarily external stakeholders and the collaborative framework** to successfully deliver the 4IR programmes by the different government structure for example national, provincial and local.

- **Outlines the way-of-work (methodology)** to ensure the PC4IR SIP **initiatives are strategically and effectively communicated, coordinated, measured and monitored.**

- Outline the **impact areas and the strategy for regulatory, policy and legislative** review to create a 4IR enabling environment in South Africa.

- **Aligning the PC4IR** SIP with South Africa's **existing key strategic developmental plans**, primarily the NDP and the **MTSF 2019 – 2024**.

- The PC4IR SIP principles are **modelled around the proposed pillars of the PC4IR** report and the NDP 2030. These principles inform a rational behind each intervention to achieve the primary objective of a '4IR-Enabled RSA'.

- They are essential fundamentals that form the basis for adopting 4IR programs and can be viewed from three pivotal broad strokes:

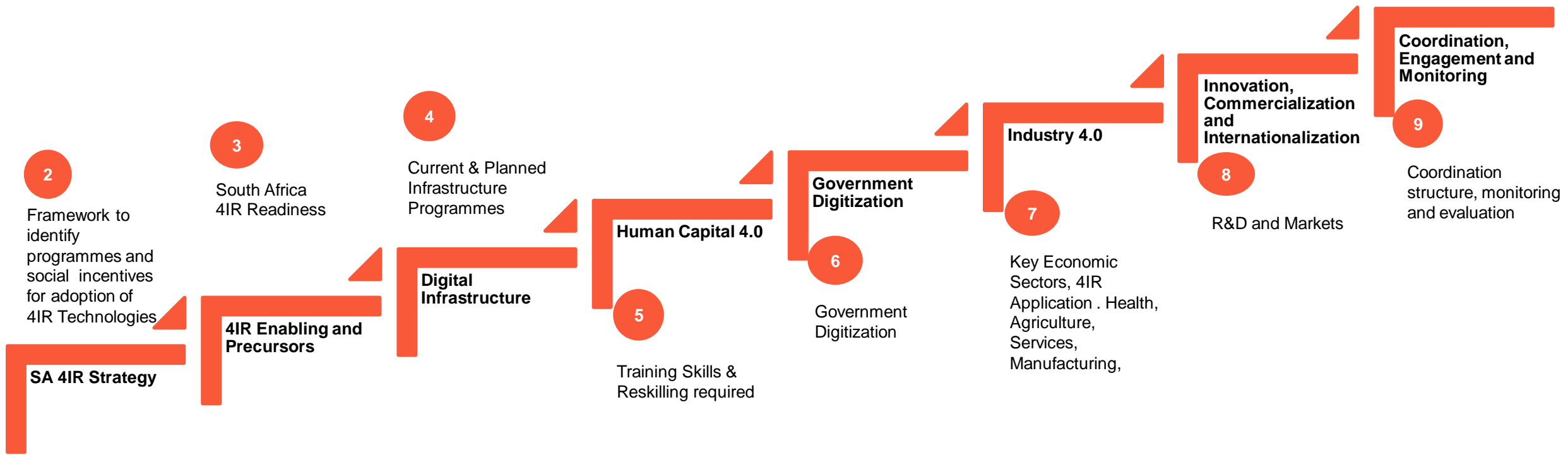|		
• Develop People and Skills for a 4IR ecosystem • Promotion of Human Rights • Cybersecurity (human security, which reinforces human rights) • Environmental protection	• Economic Development and Inclusivity • International Competitiveness	• Technological Transformation, Invention and Innovation • Build Sustainable Infrastructure
1)Human centred	**2)Economic focus**	**3)Technological advancement**

1 *"South Africa will have a globally competitive, inclusive and shared economy with the technological capability and production capacity that is driven by people harnessing the Fourth Industrial Revolution to propel the country forward towards its social and economic goals." (PC4IR Report 2020)*

2 Framework to identify programmes and social incentives for adoption of 4IR Technologies

SA 4IR Strategy

3 South Africa 4IR Readiness

4IR Enabling and Precursors

4 Current & Planned Infrastructure Programmes

Digital Infrastructure

Human Capital 4.0

5 Training Skills & Reskilling required

Government Digitization

6 Government Digitization

Industry 4.0

7 Key Economic Sectors, 4IR Application . Health, Agriculture, Services, Manufacturing,

Innovation, Commercialization and Internationalization

8 R&D and Markets

Coordination, Engagement and Monitoring

9 Coordination structure, monitoring and evaluation

The methodology of the PC4IR SIP informs the way the 4IR PMO works in developing the PC4IR SIP. It is the method through which the interventions will be framed and on-boarded. The PC4IR SIP needs to identify or develop key interventions in the form of programmes or projects to achieve a 4IR enabled South Africa. The overarching objective of the PC4IR SIP is the implementation of the PC4IR Report and its recommendations.

Programme / Project: A programme or project needs to be identified first as an intervention under the PC4IR SIP

Strategic Position/s: 4IR Enabling and Sustainability Precursors, Digital Infrastructure, Human Capital 4.0, Digitisation, Application of 4IR Technologies Private Sector, Innovation, Commercialisation and Internationalisation.

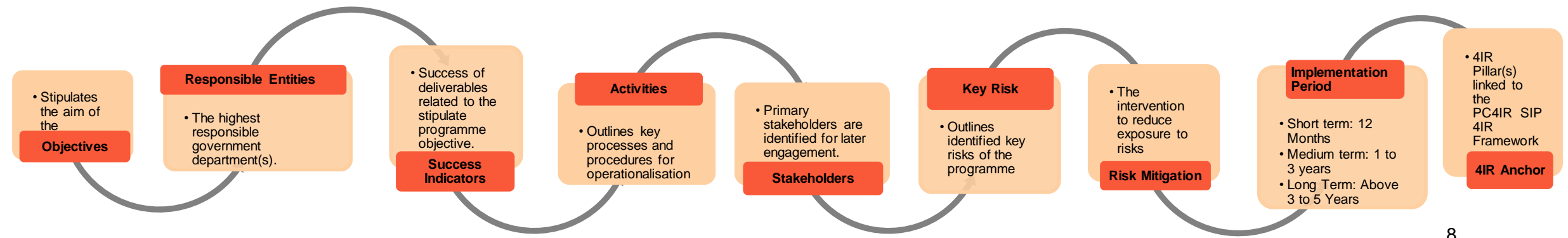**Status:** Each programme's status will be determined as being:
Operational = these are existing programmes,
Advance = programmes that are almost live or policies that are on their final stage before implementation,
On-going = process has started but not yet implemented/operational,
Not started = programmes here will be those that are not started but critical.
Futuristic = not started will be beneficial for the country but with low priority.

PC4IR Recommendation: Specifies the PC4IR Report recommendation linked to the programme.

Impact: estimated number of individuals that the programme / project plan to positively impact directly either economically or socially

Project value: project investment/budget value

Identified Beneficiaries: the identified beneficiaries for the programme of project

Objectives	Responsible Entities	Success Indicators	Activities	Stakeholders	Key Risk	Risk Mitigation	Implementation Period	4IR Anchor
• Stipulates the aim of the	• The highest responsible government department(s).	• Success of deliverables related to the stipulate programme objective.	• Outlines key processes and procedures for operationalisation	• Primary stakeholders are identified for later engagement.	• Outlines identified key risks of the programme	• The intervention to reduce exposure to risks	• Short term: 12 Months • Medium term: 1 to 3 years • Long Term: Above 3 to 5 Years	• 4IR Pillar(s) linked to the PC4IR SIP 4IR Framework

PRECUSOR PROGRAMMES SUMMARY

Programme/Project	Objectives	Responsible Entity / Stakeholders	Success Indicator	Impact Period
Energy Security: Integrated Resources Plan	Energy that is affordable, with low greenhouse gasses emissions (GHG), diverse generation sources and reduced water consumption.	Department of Mineral Resources and Energy • All (public and private)	National energy security in a form of reliable energy production, distribution and storage.	Short Term
Licensing of the High Demand Spectrum	Release Wireless Open Access Network spectrum & International Mobile Telecom spectrum.	DCDT • ICASA	Spectrum licences allocated.	Short Term
National Cybersecurity Policy Framework: Critical Information Infrastructure	Centralise coordination of cybersecurity activities.	State Security Agency • DoJCD • DCDT	The establishment of the Justice, Crime, Prevention and Security Cluster Cybersecurity Response Committee which will be supported by the Cybersecurity Centre.	Short Term
Regional and Continental Harmonisation Strategy: 4IR Strategy for Africa and SADC	Develop, enhance and harmonise existing African Continental 4IR policies, regulations, strategies and practices. The operationalization of the SADC declaration on the fourth industrial revolution.	DCDT • African Union • DIRCO	The alignment of existing continental 4IR initiatives, and the development of new initiatives. A prepared SADC for the 4th Industrial Revolution through regional ICTs	Short Term

Note: *This is a Consultative Draft; the proposed programmes are to initiate discussions with relevant Departments. Further programmes will be identified and on-boarded during consultations with other Government Departments.*

DIGITAL INFRASTRUCTURE SUMMARY

Programme/Project	Objectives	Responsible Entity / Stakeholders	Success Indicator	Impact Period
5G network deployment policy and policy direction	Address security for connected devices, ensure that there is equal access to 5G therefore bridging the digital divide.	DCDT • ICASA • BBI • Sentech	Improved all inclusion access to connectivity.	Short Term
Expand Broadband Connectivity in the highly radio sensitive SKA	To provide broadband connectivity to underserviced radio sensitive SKA to enable 4IR	DSI • DCDT • BBI • National Treasury	Expand the reach of broadband connectivity for communities in the surrounding SKA area.	Short Term
Centralised State-owned Network Company	To consolidate and optimise state-owned network to form a centralized state-owned Network company	DCDT • DPSA • National Treasury • DPE • DoT • DSI	Initiate and finalise a business case for the establishment of a state-owned network company	Medium Term
National Hyper-scale Data Centre	Digitise SAPO, leveraging from the existing SAPO infrastructure. Expanding the mandate of SITA cloud services.	DCDT • SAPO • SITA • National Treasury • DSI	Launch of a national state-owned Hyper scale Data Centre	Short Term

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Programme/Project	Objectives	Responsible Entity / Stakeholders	Success Indicator	Impact Period
National Digital and Future Skills Strategy	To empower citizens with digital skills through upskilling, reskilling and lifelong learning to address the digital skills divide.	DCDT • All government departments: national, provincial and local • Private sector	Implementation of the digital skills strategy by all stakeholders.	Short Term
NEMISA as a digital learning institution (NEMISA- Coursera Training Programme)	To provide 50,000 unemployed youth with digital skills needed for the 4th industrial revolution.	DCDT • NEMISA • Coursera • DHET	Reach a target of skilling up to 50,000 citizens.	Short Term

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GOVERNMENT DIGITISATION SUMMARY

Programme/Project	Objectives	Responsible Entity / Stakeholders	Success Indicator	Impact Period
Digital Government	Transform government to be proactive, advance service delivery and improve engagement with the public.	DCDT • SITA	1. Improved public trust. 2. Collaborative government services.	Short Term
Secure storage of government data	Mitigate data security risks & securely store government data.	DCDT • All government departments: National, Provincial and Local	Reduced number of cyber-attacks.	Short Term
National Open Data Strategy and Cloud Policy	To empower South Africans to realise the socio-economic value of data and establish a data driven ecosystem.	DCDT • All government departments: National, Provincial and Local • Private Sector • Public Enterprises	1. Clear data governance policies, regulation and legislation. 2. Aligned existing data policies, regulation and legislation. 3. Improved connectivity and access to data and cloud services. 4. Implementation of effective cybersecurity privacy, data and cloud protection measures.	Short Term
ICT and Digital Economy Masterplan	To provide a blueprint for developing national priority of digital empowerment.	DCDT • Private Sector • All government departments: National, Provincial and Local • Labour	Digital transformation across the public and private sectors.	Short Term
Merge the role of the Chief Data Officer to the POPIA Information Officer	To ensure that government data is properly managed and used for its intended purpose.	DCDT • Presidency • DoJCD	Duties of the POPIA Information Officer to include government data responsibility.	Short Term

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CLUSTER PROPOSED PROGRAMMES

Cluster	Challenges	Proposed Solutions	Technology Interventions
Economic Sectors, Investment, Employment & Infrastructure Development (ESIEID)	The inefficient tendering process and poor contract management has negative impact on infrastructure investment and implementation. Lack of effective tools that ensures youth-owned, women and persons with disabilities start-ups and SMMEs are empowered through government preferential procurement spend.	**Government Infrastructure Investment Smart Tender System**: digitisation of the tender process and adopt smart contracts (blockchain) to ensure transparency and public-private partnership initiatives to improve validation and verification. **Advance public procurement model**: in supporting 40% of all public procurement in South Africa being allocated to women-owned businesses, build an algorithm that will verify businesses and allocate government business accordingly.	• Blockchain can be used to provide transparency in tender and contract management process. • Convergent technologies can be used in effective planning, facilitating and monitoring. • AI • Big Data Analytics
Governance, State Capacity & Institutional Development (GSCID)	Fraud & corruption across the public sector, causing the public administration to be viewed as a corrupt entity. Success in the fight against fraud and corruption will help gain public trust and value. Inadequate allocation of funds for projects that support the achievement of the National Development Plan.	**Anti-fraud and corruption system**: which will provide transparency in supply chain and appointment of human resources. Develop and deploy AI algorithms to be used to verify the processes; use blockchain to provide transparency and immutability. **Public Sector Annual Performance Plan (APP) and MTSF system**: digitisation of the APP for proper planning and ensure accountability on the MTSF. This can be a dashboard that will be used across the public administration to monitor performance and align the plans and projects to the NDP goals.	• Blockchain • AI
Social Protection, Community & Human Development (SPCHD)	Ineffective and inefficient access and distribution of grants to social welfare beneficiaries. In some cases, funds that are allocated for initiatives such as for the old age, the persons with disabilities etc. are misused as a result beneficiaries' needs are not met creating poverty. The existing Smart ID features are not fully utilized to its digital capacity.	**Advance the National Integrated Social Protection Information System (NISPIS):** integrate social development systems to ensure that the services are offered to the deserving beneficiaries, thorough verification, and validation is required. Secondly, align with the child protection act, where the sex offenders' database is integrated with the NISPIS to ensure that children are not under the care of people in this database. **Digital Identity**: deploy the use of all features of the Smart ID, using convergent of technologies in institutions to safely and efficiently render services.	• Big Data Analytics • Cloud Computing • Cyber Security • Blockchain • AI
Justice, Crime Prevention & Security (JCPS)	Lack of inclusion of indigenous (vernacular) languages in technologies and economic activities, which has an impact on social cohesion.	**Use of vernacular languages in technologies**. To promote and include the use of South African languages in economic activities. This will preserve local languages and allow vernacular communication with the global village. **Establish a drone unit in the police force**: for cost-effective surveillance, tracking and intelligence gathering. Drones are an alternative to using expensive helicopters. **Digital court solutions:** to improve the efficiency of court proceedings and secure data critical for prosecution.	• Smart Drones • Big Data Analytics • Blockchain • AI for application in language recognition and interpretation.
International Cooperation, Trade & Security (ICTS)	Use of manual processing in managing movement of people in the continent. Lack of integration in trading within the region, movement of goods and offering of service across borders. Poor security in trade routes and ocean economy.	**Digital visa integrated platforms** to facilitate the movement of people in the continent. **ACFTA integrated cross border systems** for e-documents processing to facilitate the movement of goods and to combat corruption in borders. **Implement the application of satellite technology** for remote sensing on ocean trade routes in combination with AI and IoT platforms to ensure maritime safety and security, to fight piracy and improve harbours' efficiency.	• AI • IoT • Blockchain. • Satellite Technology

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Programme/Project	Objectives	Responsible Entity / Stakeholders	Success Indicator	Impact Period
Postbank State Bank	To establish a state-owned bank, that is trusted, efficient and accessible to all South Africans.	DCDT • SAPO • Postbank • National Treasury • Reserve Bank	Launch and operation of a state-owned bank.	Short Term
SAPO eCommerce platform	To develop a regional and continental e-commerce platform to take advantage of African Continental Free Trade Area (ACFTA) and to exploit South Africa Logistic comparative advantage being the gateway for exports to Sub-Saharan Africa by competing with imports on an equal footing domestically.	DCDT • SAPO • National Treasury	To continuously produce and empower distinguish use of AI in public and private sectors.	Short Term
IP Protection and Enforcement	Establish a unit for IP protection and enforcement.	DCDT and CIPC • All government department: National, Provincial and Local. • Private Sector	Monitoring, protection and enforcement of IP rights locally and internationally.	Medium Term
Establishment of the AI institute	To develop and build a national and international recognized AI ecosystem that promotes AI research and technology in Africa. To outline a country AI strategy that is all inclusive will provide direction on the establishment of the AI Institute	DCDT • All government department: National, Provincial and Local. • Private Sector	To continuously produce and empower distinguish use of AI in public and private sectors.	Short Term
Digital Transformation Centre (ADTC)	To support digital transformation at the national and global level, to facilitate the diffusion and permeation of technological innovation.	DCDT • ITU • All government departments: National, Provincial and Local	Launch of DTC	Medium Term

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Economic Sector	Challenges	Proposed Solutions	Current Interventions
Health	Numerous quality challenges, inefficient service utilisation, limited resources and inadequate referral procedures, they are exacerbated by the high burden of the need of healthcare service and significant inequality between the public and private health sectors.	1. Telemedicine platforms and Patient facing solutions 2. Standardised open data share systems 3. Digital Health sandboxes and hackathon 4. Digital supply-chain platforms	**1.** Implementation of National Health Insurance (NHI), which is intended to provide universal health coverage especially for those who cannot afford timeously and quality health treatment and care.
Agriculture	The critical challenges that the sector is faced with are climate change, water crisis, pest controls, soil degradation, increase in farming costs and job losses.	1. **Agri 4.0:** Analytics and drones 2. **Automation:** Agricultural robots (Agbots); Robotic swarms; Variable rate swarth control; Precision Agriculture; Rapid iteration selective breeding. 3. **IoT (Sensors):** Air & Soil sensors, Equipment telematics, Livestock biometrics, Crop sensors; Infrastructural health sensors. 4. **Urban Food Security (Engineering):** Closed ecological system; Synthetic biology; Vertical farming (urban agriculture). To address land challenges in urban areas. 5. **Food Development:** Genetically designed food such as Invitro meat.	**1.** Climate Smart Agriculture (CSA) Strategic Framework **2.** Conservation Agriculture Policy
Mining	The leading challenges that this sector battles with are job losses, unstable electricity supply and mining accidents.	**Mining 4.0:** 1. Reskilling and upskilling of mine employees in related 4IR technologies. Advanced analytics and simulation modelling before mining activities commence. 2. Blockchain technology applied in the tracking of the origins of ore and metal 3. IoT - live transmission of tectonic activity and the movement of miners on the ground 4. Autonomous operations and robotics 5. 3D printing of underground tools and equipment.	**1.** Mine Health and Safety Inspectorate **2.** Mining Charter

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Economic Sector	Challenges	Proposed Solutions	Current Interventions
Smart Community	The improvement of cities will further promote inequality challenges, as the development of rural areas will be neglect.	1. **Smart Villages**: Smart clinics and hospitals using drones for the delivery of medicines, telemedicine for improved diagnosis of patients without travelling long distances.. 2. **Regulation**: Develop and implement policies, regulation and governance standards for the use of IoT; align data protection policies to cater for compliance of the continuous connection of things.	Smart Community Framework
Financial	The major challenges of the Financial sector include, the increased number of cybercrime and security breaches in financial sectors, costing institutions millions of rands. The high financial fees in banking, insurance and investment are a huge cost to the customers. There is a lack of customized financial product development because some financial institutions haven't fully harnessed the power of big data. Lack of efficient payment platform to facilitate day to day transactions	1. **Post Bank Payment platforms:** Fintech payment platform- Mobile wallets, P2P payments. 2. **Combat crime and fraudulent transactions** in the sector by integrating blockchain in financial sector 3. **Deposits and lending:** provide all traditional banking services online to reduce high banking charges 4. **InsureTech**: (both long- and short-term insurance) provide low-cost insurance products through better risk profiling 5. **Investment:** provide online digital platforms for investing at lower fees. Enable better access to diverse asset classes.	National Treasury Policy Document, 2011
Education	The South African public education system is severely strained in equipping learners with creative thinking, digital and entrepreneurship skills to contribute to the economy.	1. Develop minimum infrastructure policy 2. Cross-cutting zero-rated online e-learning platforms. 3. 4IR HUBS. 4. Gig Economy skills. 2. Establish Education Digital Technology Ecosystem (EDT)	1. The National Digital Skills Strategy has been developed by the DCDT, intended to provide a framework for the prioritisation of critical digital skills necessary for 4IR. 2. Implementation of the Operation Phakisa 3-foot plan to provide school with connectivity.

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Economic Sector	Challenges	Proposed Solutions	Current Interventions
Services	The evolving technological innovations which influence business models and operations. Online services require re-positioning of labour resources, therefore manual labour is being replaced by technologies and automated processes. The lack of localisation for demand and supply platforms also cripples these sectors.	1. **Dashboard to monitor the use of local solutions in large corporates**: AI 2. **Food origin tracing** 3. **Advance workforce productivity**	1. Ecommerce policies under development 2. ICT and Digital Economy Masterplan 3. Growth of e-commerce logistics 4. National Digital Skills Strategy
Manufacturing	The manufacturing sector can be described as diverse, but the scale of production is low, lacks competitiveness and its declining, as many South African manufacturers now depend on supply chains from Asia. Manufacturers have also been affected by increased import competition and the volatility of the Rand exchange rate.	1. **Promote High-Value Products** 2. **Manufacturing for metals used in 4IR devices** 3. **Funding for advanced 4IR technology applications 3D Prototyping Access** 4. **Digital Economic Zone.** 5. **Africa 4IR Open Challenge** 6. **Establish Platform for Advanced manufacturing.**	1. The Industrial Policy Action Plan, as well as the Department of Economic Development's New Growth Path, sees an expanded manufacturing sector as the primary and central driver of the economy (DTI, 2013). 2. In response to the steady decline in manufacturing activity, the Industrial Policy Action Plan (IPAP) of the DTIC has a target of 2 447 000 additional indirect and direct job. 3. DTIC learned from a decade of implementing IPAP; and that it robustly removes the key barriers to industrial strategy. 4. DSI AMTS and DTIC Industrial Development Action Plan 5. Established SEZ (Economic Zones) 6. Localisation initiatives and BBBEE.
Transport	Lack of an integrated smart and efficient public transport system, supporting a thriving economy that promotes sustainable economic growth, supporting a healthier lifestyle, providing safe and accessible mobility options, socially inclusive for all communities and preserving the environment.	**Active Demand Management Systems**. Automated Fare Collection (AFC) to allow the **integration and interoperability of multiple transport systems** Implementation of communication-based train control systems (CBTC)	Interventions for accessibility, infrastructural development collaboration, and policy initiatives that encourage inter-modality such as the following: 1. The National Transport Master Plan(NATMAP 2050) 2. The Green Transportation Strategy for South Africa (2018–2050) 3. Integrated Transport Plans (ITPs) 4. National Planning Commission (NPC): National Development Plan for 2030. 5. The Drone Council SA was initiated in 2019, as an industry response to create a platform of affiliation by the various established companies and new entrants into the industry.

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THANK YOU