Government’s Response to the Fourth Industrial Revolution

CONSUMER GOODS COUNCIL OF SOUTH AFRICA ("CGCSA") ANNUAL SUMMIT 2018
WHAT IS THE 4TH INDUSTRIAL REVOLUTION

The Start of the Fourth Industrial Revolution

1st Industrial Revolution - water and steam powered mechanical manufacturing facilities
End of 18th century

2nd Industrial Revolution - manufacturing assembly line and infrastructure of electricity, gas, water, telegraph, roads
Start of 20th century

3rd Industrial Revolution - electronics, telephones, PLCs, NC machines, PCs, CAM, CIM, spreadsheets, Lean manufacturing
Late 20th century

4th Industrial Revolution - mobile, cloud, smart connected devices, cyber physical systems, smart factory, robots, mass customization, product as-service
Today

Productivity, Complexity
OPPORTUNITIES OF THE 4TH INDUSTRIAL REVOLUTION

- Potential to raise global income levels and improve the quality of life for populations around the world.
- Technology has made possible new products and services that increase the efficiency and pleasure of our personal lives.
- Technological innovation will also lead to efficiency and productivity which will open new markets and drive economic growth.
• New technologies and platforms will increasingly enable citizens to engage with Governments, voice their opinions, coordinate their efforts, and even circumvent the supervision of public authorities.
• Governments will increasingly face pressure to change their current approach to public engagement and policymaking.
• Legislators and regulators must continuously adapt to a new, fast-changing environment, reinventing themselves so they can truly understand what it is they are regulating.
• Governments and regulatory agencies will need to collaborate closely with business and civil society.
• Governments will not be able to address emergence of digital economy in isolation but must build and develop capacity to drive the process robustly.
Impact on Business

- New patterns of consumer behaviour are forcing companies to adapt the way they design, market, and deliver products and services.
- Access to global digital platforms for research, development, marketing, sales, and distribution, can oust well-established incumbents faster than ever before.
- Forcing companies to re-examine the way they do business as business leaders need to understand their changing environment, challenge the assumptions of their operating teams, and relentlessly and continuously innovate.

Impact on People

- It will change not only what we do but also who we are: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships.
- One of the greatest individual challenges posed by new information technologies is privacy.
Readiness Diagnostic Model Framework

Future of Production Capabilities

Structure of Production
- Complexity
- Scale

Drivers of Production
- Technology & Innovation
  - Technology Platform
    - Availability of ICT
    - Use of ICT
    - Digital Security & Data Privacy
  - Ability to Innovate
    - Industry Activity
    - Research Intensity
    - Available Financing
- Human Capital
  - Current Labour Force
    - Labour Force Capabilities
- Global Trade & Investment
  - Trade
    - Trade Openness
    - Trade Facilitation & Market Access
  - Investment
    - Investment and Financing
    - Infrastructure
      - Transportation & Electricity
- Institutional Framework
- Sustainable Resources
- Demand Environment
  - Demand
    - Market Size
  - Consumer Base
    - Consumer Sophistication

Readiness for Future Production Report (WEF, 2018)
• South Africa is ranked as a nascent (limited production base and at risk for the future) and within the top 50 countries. Leading countries include; China, Japan, Germany, South Korea and USA.
• South Africa’s manufacturing share of the GDP has decreased to 12% since early 1990s.
• SA has strongest structure of production in Africa.
• SA has ability to innovate with a strong innovation culture and entrepreneurial activities are supported by sophisticated financial sector.
• Human capital remains the most pressing challenge, with shortage of engineers, scientists and digital skills.
• Stable policy environment but need to improve its institutional frameworks to respond to change.
1. Knowledge about ICT
   - Basic Information Technology knowledge
   - Ability to use and interact with computers and smart machines like robots, tablets etc.
   - Understanding machine to machine communication, IT security & data protection

2. Ability to work with data
   - Ability to process and analyze data and information obtained from machines
   - Understanding visual data output & making decisions
   - Basic statistical knowledge

3. Technical know-how
   - Inter-disciplinary & generic knowledge about technology
   - Specialized knowledge about manufacturing activities and processes in place
   - Technical know-how of machines to carry out maintenance related activities

4. Personal Skills
   - Adaptability & ability to change
   - Decision making
   - Working in team
   - Communication skills
   - Mindset change for lifelong learning
PROPOSED NATIONAL FOURTH INDUSTRIAL REVOLUTION FRAMEWORK

National Fourth Industrial Revolution Framework

Presidential Commission on Fourth Industrial Revolution

Digital Society
R&D and Innovation
Skills Development
Industry and Manufacturing
Economic Policy
Inclusive Growth

Sectoral Engagements & Partnerships
National Fourth Industrial Revolution Implementation & Monitoring
The Commission shall consider the following issues in developing a National Action Plan on the Fourth Industrial Revolution:

• How should South Africa characterize the 4th Industrial Revolution in regard to its social and economic aspirations and priorities?
• What is South Africa’s state of readiness towards the Fourth Industrial Revolution? What are South Africa’s unique competitive advantages (local and international) in these areas: developments in Internet of Things, genetics, artificial intelligence, robotics, nanotechnology, 3D printing and biotechnology?
• What will be the impact of the Fourth Industrial Revolution on government, business and society as a whole?
• What are the opportunities and threats presented by the Fourth Industrial Revolution?
• Does South Africa have adequate skills for the Fourth Industrial Revolution, if so, in which areas, and where are the gaps as well as the skills that will be required going forward?
• How do we prepare the workforce for multiple career changes that cut across occupational boundaries?
• What are South Africa’s Research and Development (R&D) capabilities to support the Fourth Industrial Revolution?
• What technologies should be manufactured locally to grow the ICT and related 4IR industries?
• What strategies are needed to ensure the uptake and usage of ICTs and other 4IR technologies in other sectors of the economy to drive innovation, SMME participation and job creation?
• What are the likely unintended consequences (such as job losses) and how to mitigate them?
• What mechanisms are needed to ensure effective coordination and collaboration amongst all stakeholders?

The Commission shall undertake high level research, international and regional benchmarking, and engage stakeholders within and outside government in meetings and other fora with a view to obtain and consider the views of a cross section of societal role players in the development of the Fourth Industrial Revolution National Action Plan.
## Integrated ICT Framework

### Overarching Vision:
Ensure universal service and access to all ICT networks, platforms, content and services so that all South Africans regardless of who they are, where they live, their social or economic status, benefit from the opportunities offered by the ICT sector to improve their quality of life.

### Supply-side Measures
- Open Access Regime Policy
- Radio Frequency Spectrum Policy
- Rapid Deployment Policy
- New Licensing Framework in Internet

### Demand-side Measures
- Digital Transformation of Government
- Digital Access to promote trust and security in the use of ICTs
- Digital Inclusion to create an enabling environment to promote e-commerce

### Postal Sector Reform
- Defines new role of the postal sector and SAPO in universal access
- Delineates new market structure, competition and licensing frameworks
- Expands role and obligations of Postbank

### Institutional Frameworks
- Ikamva National e-Skills Institute
- Evolution of USAASA and USAF into Digital Development Fund
- ICT Sector Commission and Tribunal
- SOC rationalisation

## ICT Policy, Legislative and Regulatory Framework

### Whole of Government Approach

### Multi-Stakeholder Cooperation
## Legislative Programme

| Action | Amendment of the following legislation ICT sector laws: Electronic Communications Act (ECA), Electronic Communications and Transactions Act (ECTA), Postal Services Act (PSA) and State IT Agency Act (SITA)  
Development of the following Bills (rationalisation of current institutions): ICT Commission and Tribunal Bill, Ikamva National e-Skills Institute (INESI) Bill, Digital Development Fund (DDF) Bill and ICT State Infrastructure Bill |
| --- | --- |
| Progress | Bills to be introduced to Parliament in 2018/19 ECA, INESI, Postal Services Amendment Bills  
Bills to be introduced to Parliament in 2019/20 Digital Development Fund, ICT Commission and Tribunal, Postbank Amendment Bill  
Bills to be introduced in Parliament in 2021/22 State IT Agency Amendment Bill, State ICT Infrastructure Bill, Electronic Communications and Transactions Act Bill |
| Next steps | Cabinet has approved the SOC Rationalisation Framework Document, Business Cases being developed to support legislation drafting  
Development and approval of the Business Cases to establish the ICT Sector Commission & Tribunal, Digital Development Fund, SITA and State Infrastructure company  
Development of Money Bill for the DDF |
| Impact | Policy coherence and certainty, enabled environment for investment, enhanced competitiveness of the sector, consumer protection, transformation, improved capacity of the State to deliver, universal service and access, opening access to critical Infrastructure, modernisation of SAPO and transformation of the postal sector |
| Timelines | ECA and INESI already introduced  
Postal Services Amendment Bill in Cabinet Committee 17/10/2018  
DDF ICT Sector Commission and Tribunal Bill to be gazetted for public consultation by end of financial year  
Input into the Financial Related Matters Amendment Bill – to support the Postbank Amendments |
South Africa is classified as an efficiency driven economy but could be left behind without further actions.

Based on M. Porter competitive strategy for countries & WEF classification

Source: ITU
Vision – Digital Transformation Centre

- Competitive SMMEs
- Empowered and Inclusive Society
- Innovation Driven Economy
- World-class Exports
- Highly-Skilled Jobs
- High Industry Growth
- Dynamic High Tech Companies
Barriers to digital transformation:
• Lack of coordination or of mechanisms to develop contextual and relevant policies supporting digital innovation and entrepreneurship;
• Unclear roles or engagement of stakeholders in developing their innovation ecosystem;
• Missing innovation capabilities, especially soft infrastructure;
• Suboptimal integration of innovation ecosystems into key sectors of the economy; and
• The impact of the fast-changing ICT/telecommunication environment.
### Entrepreneurship Phase

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### South African Ecosystem Maturity Map for Digital Transformation
Services to Ecosystems

Core Services to develop ecosystem

Cross-cutting Services to mature ecosystem

Digital Innovation dynamics

Digital Innovation Capacity

Digital innovation of Key Sectors

Partnership

Knowledge Sharing

Insight Research
Digital Transformation Centre – Initial programs

1. Policy and Governance
   • Data Policy and Strategy
   • AI Strategy
   • Cloud policy
   • Block chain to enable seamless working spheres of government

2. Innovation / SMMEs
   • Africa’s use cases
   • Dev of ICT Apps
   • Business Support /Ecosystem partnerships

3. Connect the unconnected
   • Expand 4G and Evolve towards 5G supported by fibre expansion, IoT
   • Standardisation
   • Conformance and interoperability testing
   • Cybersecurity

4. Social Impact
   • Skills (Policy makers, Regulators, SMMEs, Workers, learners)
   • Jobs – Future of Work
   • Inequality

Making South Africa a Global Leader in Harnessing ICTs for Socio-economic Development
Roadmap – Digital Transformation Centre

ECOSYSTEM

Concept Note Review workshop August 14-15
Telecom Durban Consultation
Roadmap Design workshop TBD
Launch event
Fund Raising
Full Implementation

ENTREPRENEURS
FINANCE
ENTREPRENEURIAL SUPPORT
PUBLIC SECTOR
ACADEMIA
PRIVATE SECTOR

First Services deployed

Plan
Implement
Design
Monitor and evaluate
AFRICA’S CAPACITY TO ADAPT AND EXPOSURE TO FUTURE OF JOBS

Pyramid of digital skills

- Adoption
  - Basic education and literacy
  - Familiarity with technology devices and services
- Basic use
  - Ability to collaborate, communicate and create using technologies
  - Knowledge of digital rights, privacy, security and permanence of data
  - Basic understanding of technologies, software and applications
- Creative use and adaptation of technologies
  - Computing skills
  - Familiarity with algorithms
- Creation of new technologies
  - Sophisticated programming skills
  - Knowledge of complex algorithms

SMMEs have difficulty in:
- expanding their business
- increase their sales
- Not enough technical know-how to market online

In-line with DTPS eStrategy
- In support of the ICT SMME Development Strategy
- DTPS has created an SMME eMail to market their products and services
- Online payments, warehousing and logistics will be facilitated by an ecommerce gateway platform.
- App is easy to use from your mobile device

https://drive.google.com/open?id=1ZU5RcLzJ2s1Apb08-bblUxe3dyv2b9Ge
THANK YOU