2ND ANNUAL CAREER DEVELOPMENT STAKEHOLDERS CONFERENCE

28 June 2018

Government's Response to Mitigate Risks Associated with the Fourth Industrial Revolution

1. Fourth Industrial Revolution

2. Fourth Industrial Revolution Impact

3. South Africa's State of Readiness in 4IR

4. Proposed National Fourth Industrial Revolution Framework

5. Presidential Advisory Council on Fourth Industrial Revolution
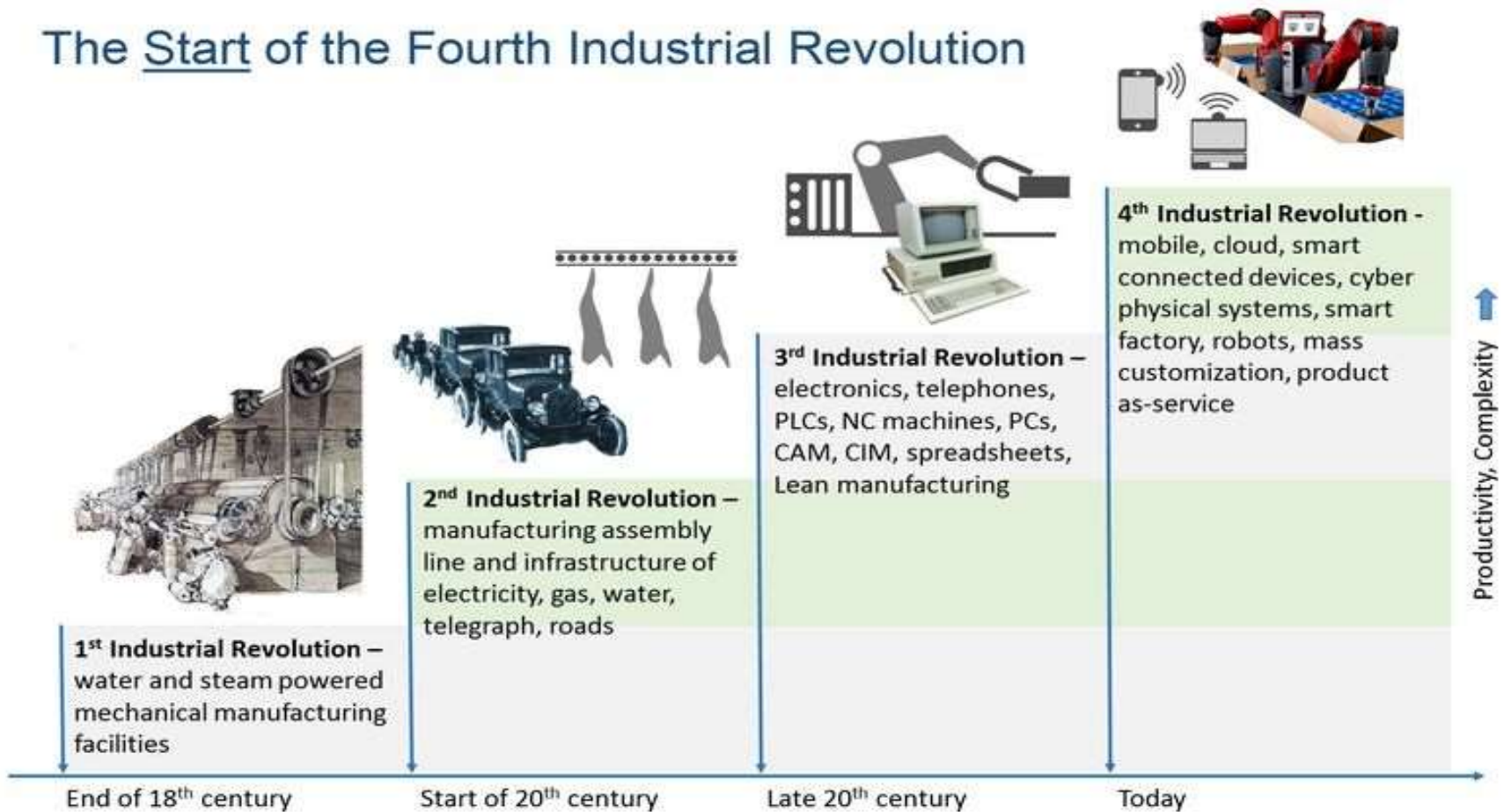
6. Discussions

WHAT IS THE 4TH INDUSTRIAL REVOLUTION

telecommunications
& postal services

Department:
Telecommunications and Postal Services
REPUBLIC OF SOUTH AFRICA

The Start of the Fourth Industrial Revolution

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

3rd Industrial Revolution – electronics, telephones, PLCs, NC machines, PCs, CAM, CIM, spreadsheets, Lean manufacturing

2nd Industrial Revolution – manufacturing assembly line and infrastructure of electricity, gas, water, telegraph, roads

1st Industrial Revolution – water and steam powered mechanical manufacturing facilities

Productivity, Complexity

End of 18th century   Start of 20th century   Late 20th century   Today

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- 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 OF THE
4TH INDUSTRIAL REVOLUTION

telecommunications
& postal services

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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.
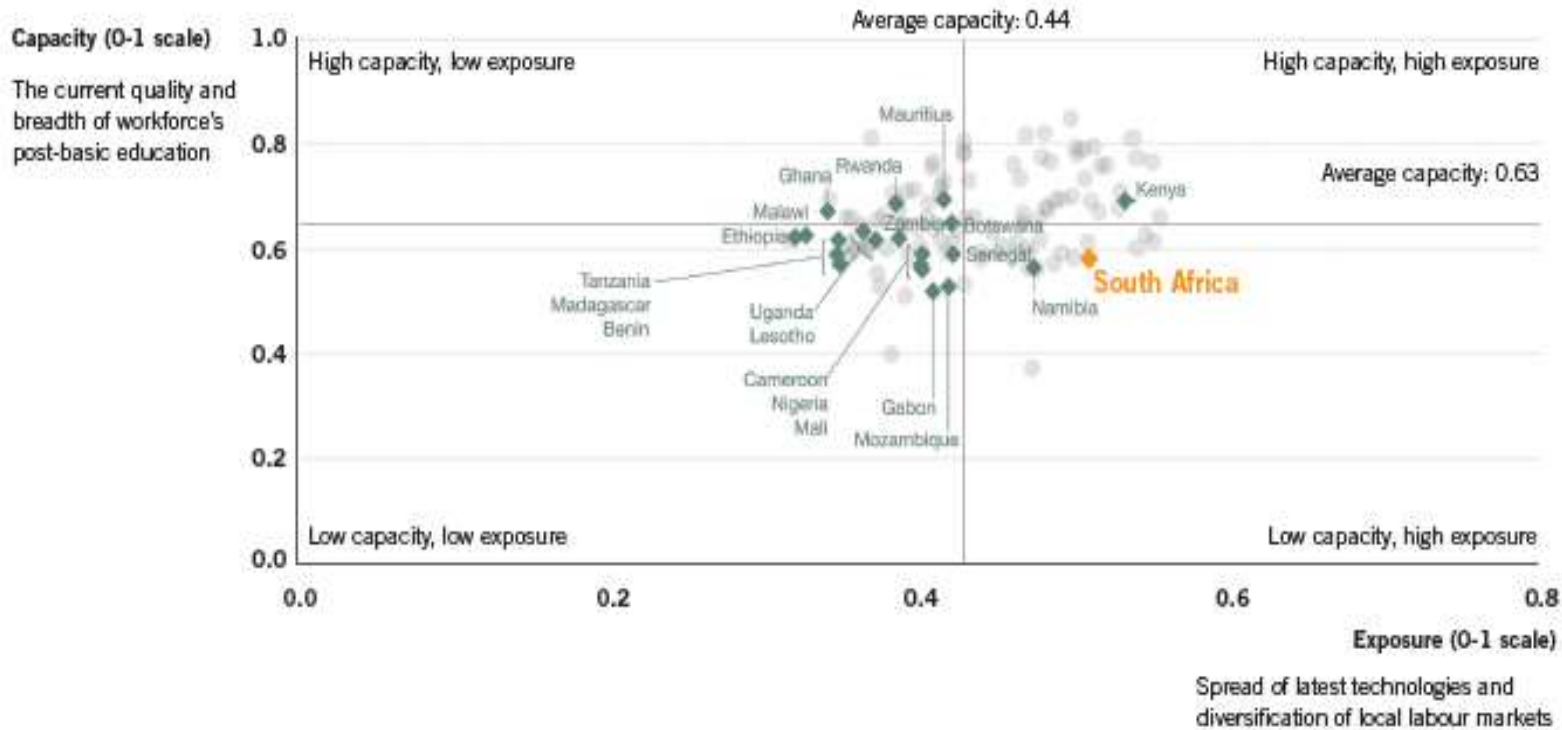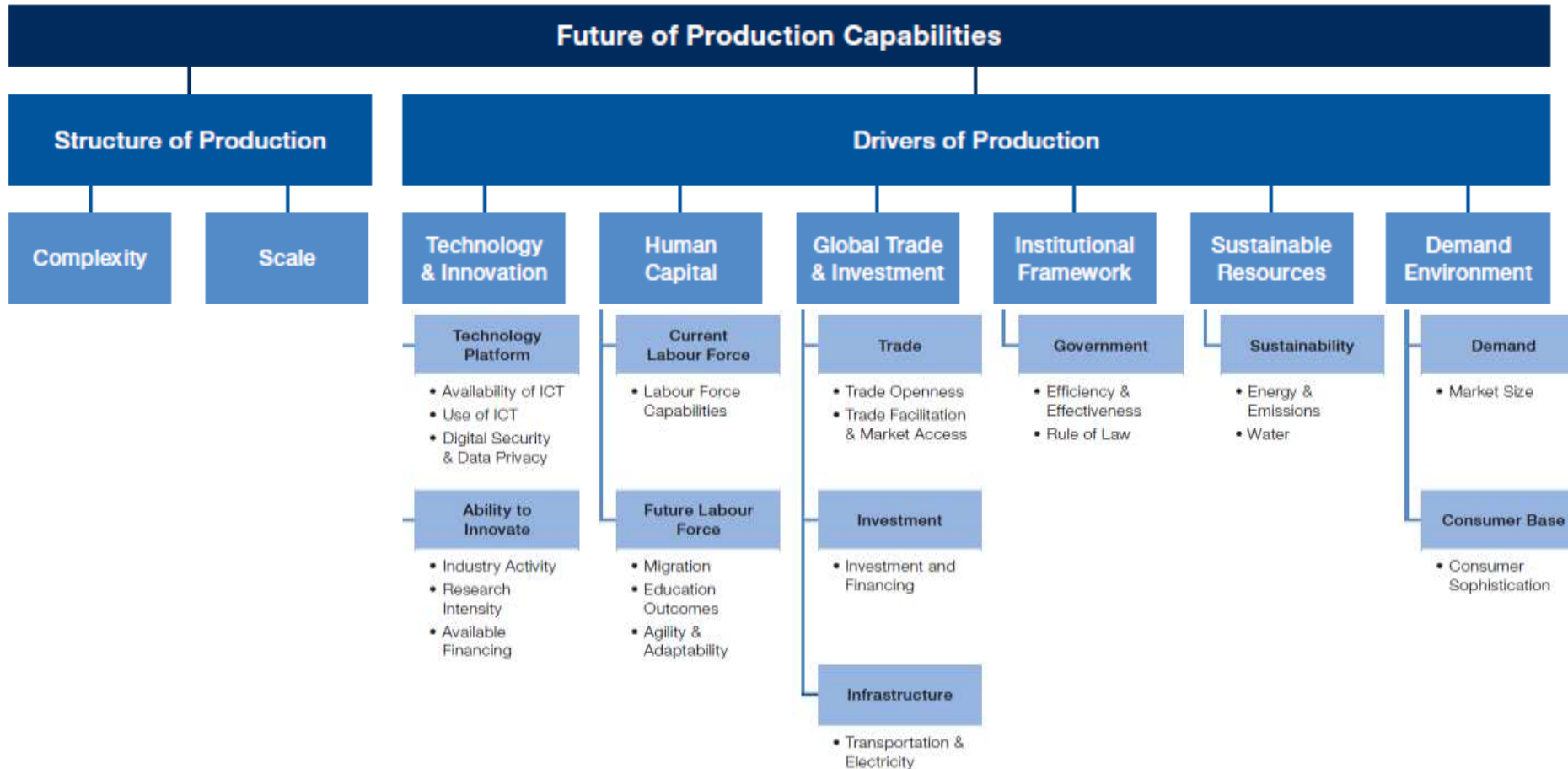
WEF: The Future of Jobs and Skills in Africa (2017)

Readiness Diagnostic Model Framework

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.

South Africa
Nascent

Readiness for the Future of Production Assessment 2018 edition

Key economic indicators

Population millions	55.9	GDP per capita US$	5,260.9
GDP US$ billions	294.1	Unemployment rate %	26.7

Key production indicators

Manufacturing value added 2010 millions US$	51,204.4	Manufacturing value added growth Annual %	-1.3
Manufacturing value added in economy % GDP	12.3	Medium hi-tech & hi-tech industries % of manu. value added	24.4
Manufacturing employment % working population	11.2	CO2 emission per unit of value added kg/USD	1.0

Readiness Overall Assessment

Drivers of Production — 5.0

Driver	Weighting	Rank	Score /10
Technology & Innovation	20%	46th	4.5
Human Capital	20%	67th	4.5
Global Trade & Investment	20%	41st	5.6
Institutional Framework	20%	49th	5.0
Sustainable Resources	5%	75th	5.3
Demand Environment	15%	33rd	5.5

Structure of Production — 5.0

Structure	Weighting	Rank	Score /10
Complexity	60%	53rd	5.4
Scale	40%	40th	4.5

Archetype

South Africa 5.0, 5.0

High-Potential — Leading
Nascent — Legacy

Most future-ready / Least future-ready (Drivers of Production)
Small / basic — Large / complex (Structure of Production)

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
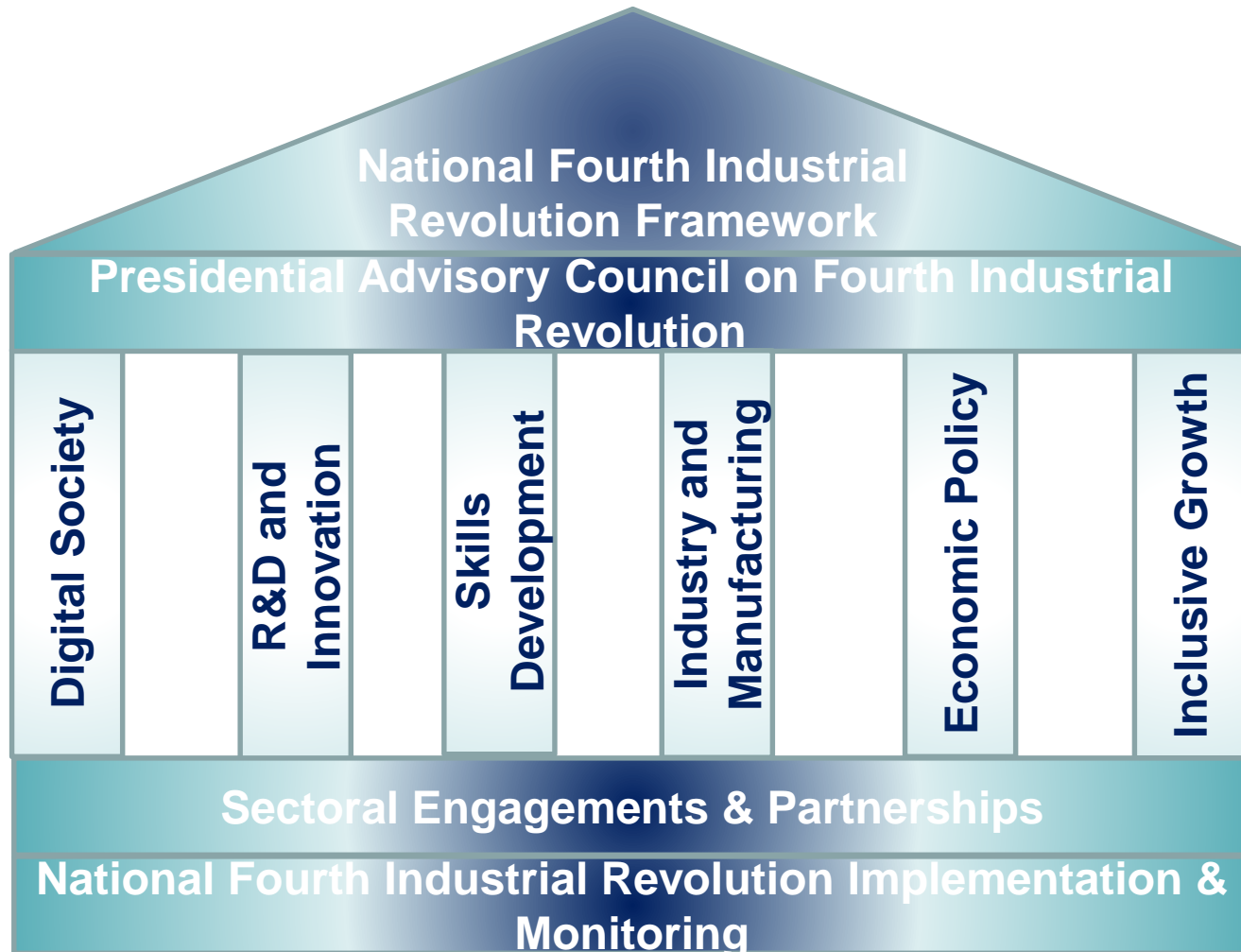> Technical know-how of machines to carry out maintenance related activities

4. Personal Skills

> Adaptability & ability to change
> Decision making
> Working in team
> Communication skills
> Mindset change for lifelong learning

More Focus   Less Focus

National Fourth Industrial Revolution Framework

Presidential Advisory Council 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

- President Cyril Ramaphosa indicated in his 2018 State of the Nation Address that government should prioritize interventions that take advantage of rapid technological changes;

- To give effect to this commitment, the President announced that the government would establish a Digital Industrial Revolution Commission which will include the private sector and civil society;

- While the announcement made reference to a Digital Industrial Revolution Commission, it has been recommended that the scope of the envisaged entity is expanded to include other aspects of the 4th Industrial Revolution hence the name of the entity is changed to the "Presidential Advisory Council on the Fourth Industrial Revolution";

- For South Africa to leverage on the benefits of the 4th Industrial Revolution, there is a need for seamless and coordinated planning across the industries and sectors that will underpin the drive towards the 4th Industrial Revolution; and

- This entails a focused approach towards the development, production, uptake and usage of cutting edge technologies throughout the economy, taking into account the possible negative consequences on employment and job creation.

The Advisory Council 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 Advisory Council 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.

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- The Advisory Council will establish working groups and they will cover the different aspects of the value chain of the transition to the Fourth Industrial Revolution such as:-
- Digital society and ICT policy **[coordinated by Department of Telecommunications and Postal Services]**
- Innovation, Research and Development **[coordinated by Department of Science and Technology]**
- Economic policy **[coordinated by Department of Economic Development]**
- Industrial restructuring **[coordinated by Department of Trade and Industry]**
- Labour market restructuring **[coordinated by Department of Labour]**
- Inclusive growth **[coordinated by the Department of Small Business Development]**
- Skills development **[coordinated by Department of Higher Education and Training]**
- Transforming Government and Governance **[coordinated by the Department of Public Service and Administration]**

- The Presidency will champion the work of the Advisory Council due to the cross-cutting nature of the Fourth Industrial Revolution and the Department of Telecommunications and Postal Services (DTPS) will act as a line department for the Advisory Council in coordination with other key government departments.

- The Directors-General of the coordinating departments of the various working groups will constitute the Management Committee to be chaired by the line department of the Advisory Council. The DTPS shall act as a line department for the Advisory Council in coordination with other government departments in the Management Committee. The Department of Science and Technology shall designate a lead research entity (ies) to support the Advisory Council.

THANK YOU