



# 4<sup>th</sup> Industrial Revolution

INDUSTRIAL DIGITISATION  
& HUMAN DEVELOPMENT



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### 4IR strategies and policies have to be human centered

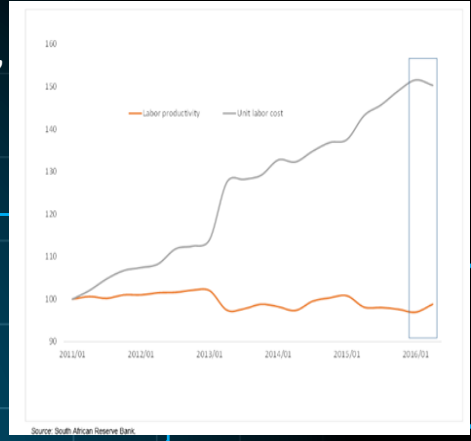
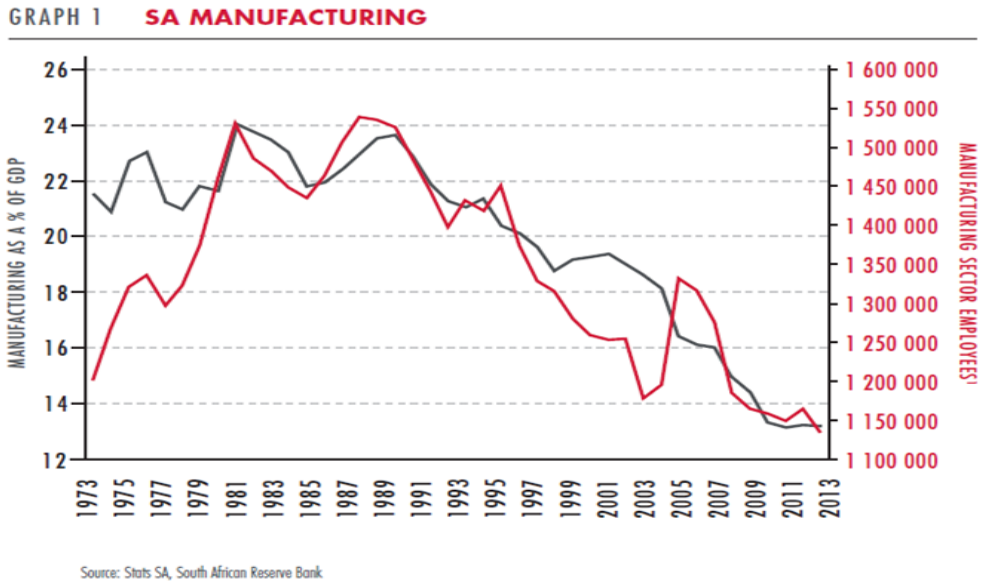
- Status of Manufacturing
- 2030 agenda and the sustainable development goals for 4IR
- Country readiness for 4IR
- Robots and technologies
- Competitiveness and Talent identification
- 4IR Industry & DTI Flagship programme
- Conclusion



# MANUFACTURING

Manufacturing's contribution to GDP fallen from 24% early 1980's to less than 13% in 2015

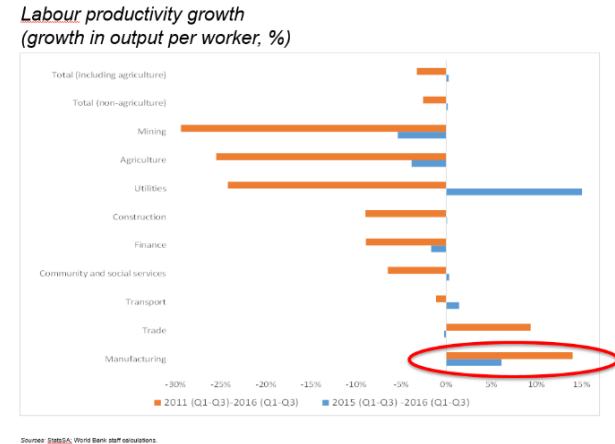
Wages are increasing, and productivity is falling



Significant productivity gains in manufacturing

Since 1989, SA manufacturing has shed half a million jobs

- Increased labour costs
- Policy and Regulatory uncertainty
- Increased competition from imports



# NATIONAL DEVELOPMENT PLAN – AGENDA 2030



## Poverty/Inequality /Jobs

## Sustainable development goals



Goal 1:

- Poverty more than lack of income/ resources
- Access to education



- Ensure inclusive, quality education for all, promote lifelong learning & basic literacy



Goal 4:



Goal 10:

- Reduce inequality within and among countries
- (Goal 5): Gender equality and empowerment



- Ensure access to water and sanitation
- Clean, accessible water for all
- Risk to Food security



Goal 6:



Goal 8:

- Promote employment & decent work
- Quality jobs & job opportunities



- Build resilient infrastructure, sustainable innovation & industrialization

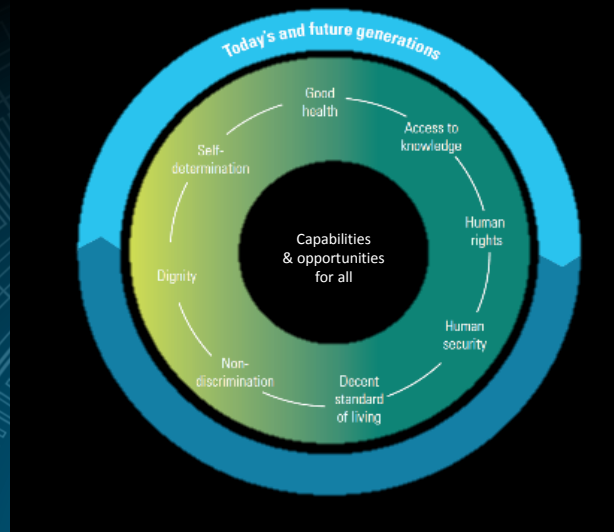


Goal 9:



# HUMAN DEVELOPMENT

UN 2016 report  
Human Development  
evolves around the  
capabilities and  
opportunities for all  
individuals



Human Development  
Action Agenda  
requires effective  
policy planning  
for inclusive growth



GOOD  
HEALTH



ACCESS  
TO  
KNOWLEDGE



HUMAN  
RIGHTS



SELF  
DETER-  
MINATION



HUMAN



NON  
DICRIMI-  
NATION



DECENT  
STANDARD  
OF LIVING



DIGNITY

# UN: Human Development Report

What skills are required for 4IR or the Digital economy?

## 21st century skills

### Ways of thinking

Creativity  
Critical thinking  
Problemsolving  
Decisionmaking  
Learning

### Tools for working

Information and  
communication  
technology  
Information literacy

### Ways of working

Communication  
Collaboration

### Skills for living in the world

Citizenship  
Life and career  
Personal and social  
responsibility

Source: Human Development Report Office.

## Fourth Industrial Revolution



A new mindset  
for jobs is  
required



Production technologies:  
3D printing; Drones;  
Advanced materials;  
Internet of Things;  
Blockchain; etc.



New ways of working:  
Co-bots; Data  
management; Software;  
Digital management &  
Business strategies

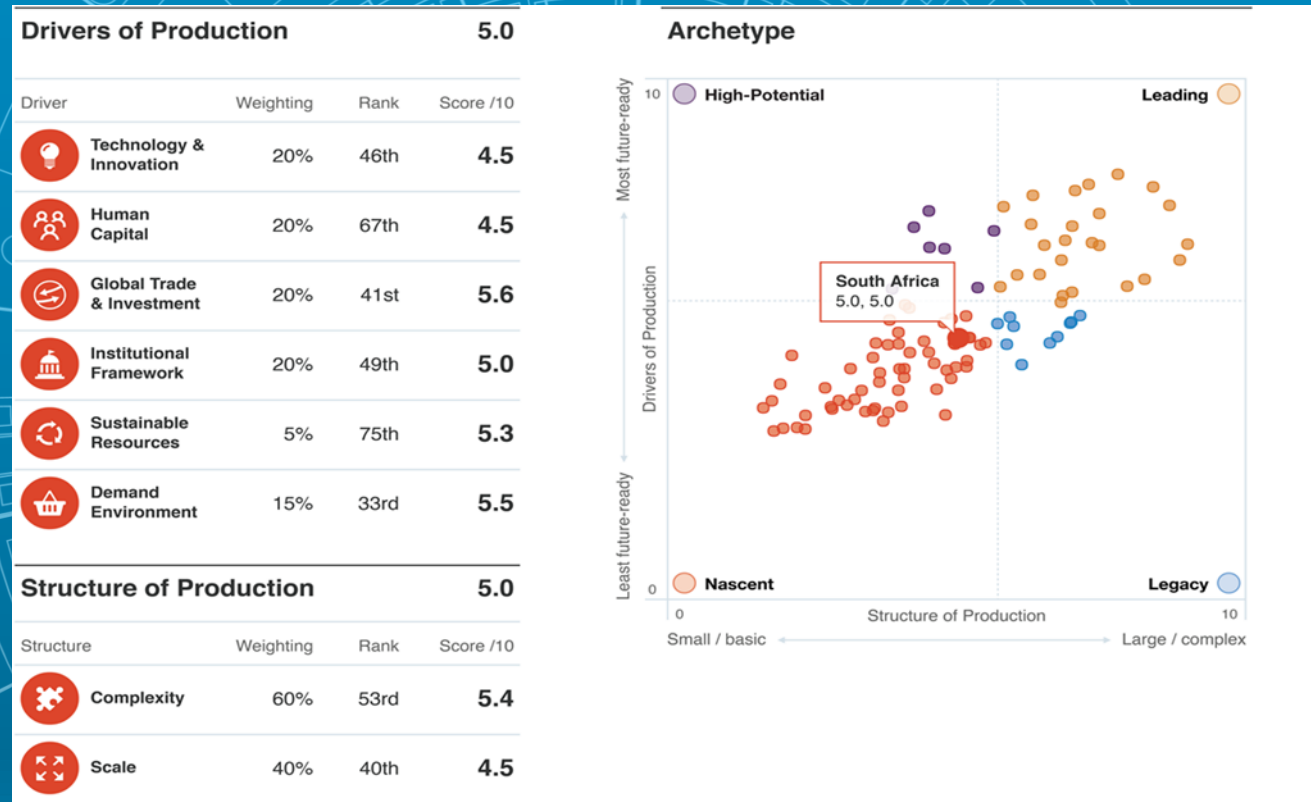


Skills & Employment  
for the future:  
Digital skills and  
high-end technical  
training

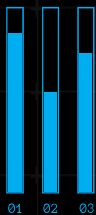
# Country Readiness

## Shaping the Future of Production 2018, WEF Report

1. Drivers of Production
2. Structure of Production Scale; and Economic complexity



# Industrial robots



\$40bn

2016 Annual robotics turnover



74% Annual robot sales  
5 Countries – China,  
US, Korea, Japan and  
Germany



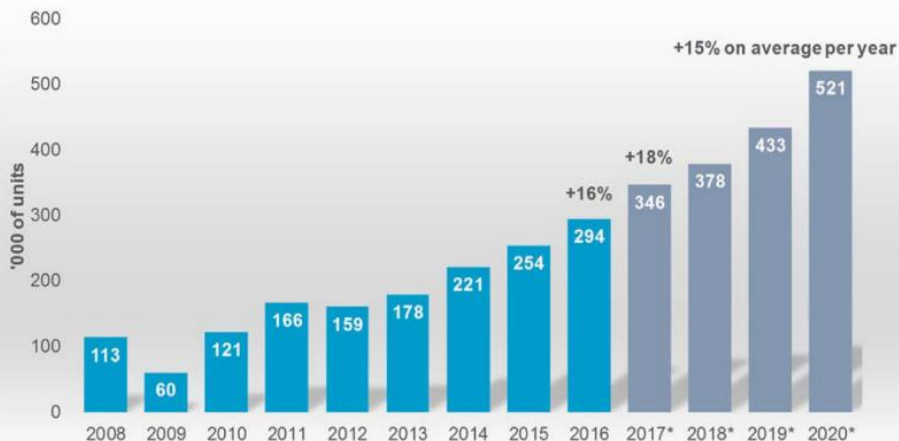
Supply of Robots +18% increase p.a.



2016 =  
\$1.8bn –  
2020 =  
\$3bn

World operational  
stock of industrial  
robots

Estimated annual worldwide supply of industrial robots  
2008-2016 and 2017\*-2020\*



\*forecast

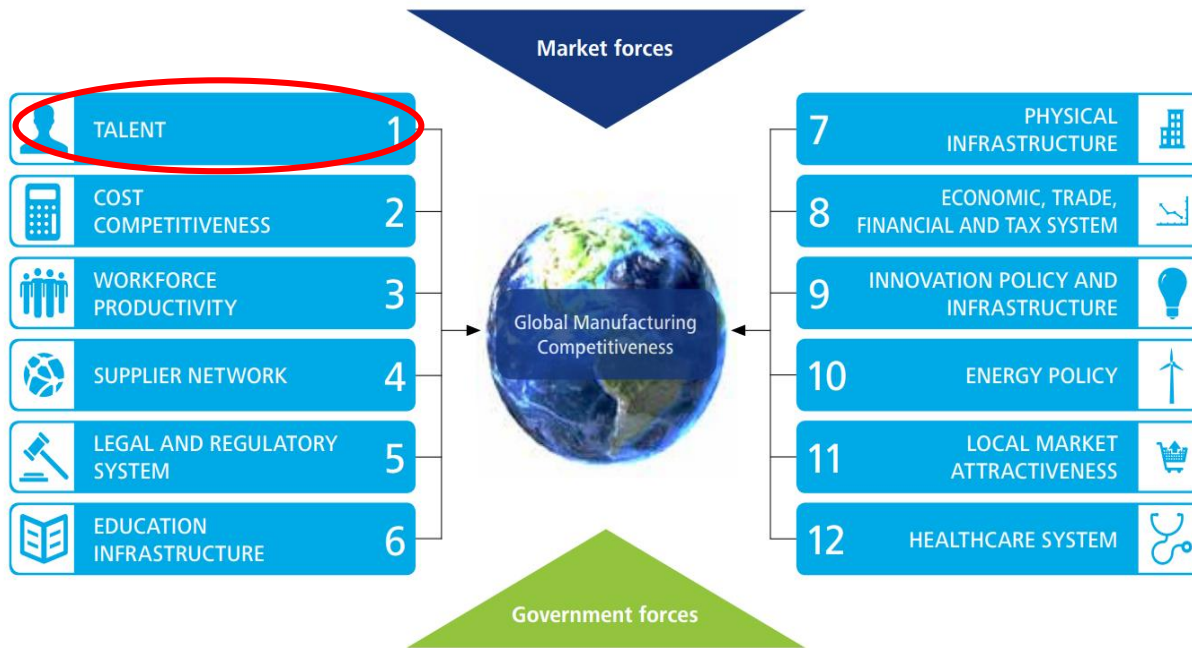
Source: IFR World Robotics 2017





# Talent drives manufacturing competitiveness

## Drivers of Global Manufacturing Competitiveness



Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index

Talent-driven innovation has been identified as one of the most important drivers of a country's ability to compete.

Key to talent-driven innovation is the quality and availability of scientists, researchers, and engineers and the quality and availability of skilled labour.

“Talent is defined as quality and availability of highly skilled workers which facilitate a shift towards innovation and advanced manufacturing strategies.”

# Talent-driven Innovation Model

PILOT SUCCESS -  
DEMONSTRATED  
CONCEPT

SKILLS  
DEVELOPMENT

ENTERPRISE  
COMPETITIVE  
NESS

Talent Identification & recruitment

Skills & Competency development

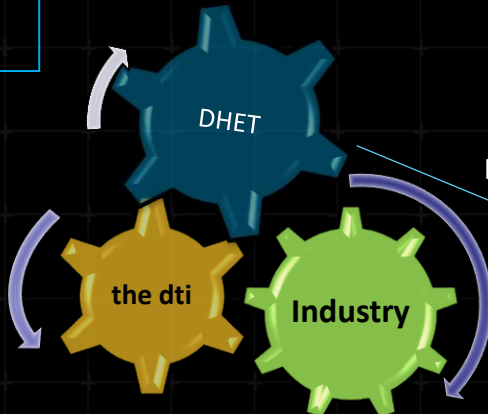
Benchmarked internationally

Focus on the Advanced Manufacturing sector (4IR)

Systemic solution to Industry demand for talent and 4IR systems



INTSIMBI FUTURE  
PRODUCTION  
TECHNOLOGIES  
INITIATIVE



PARTNERSHIP BETWEEN GOVERNMENT AND INDUSTRY

4IR

# PARTNERSHIPS



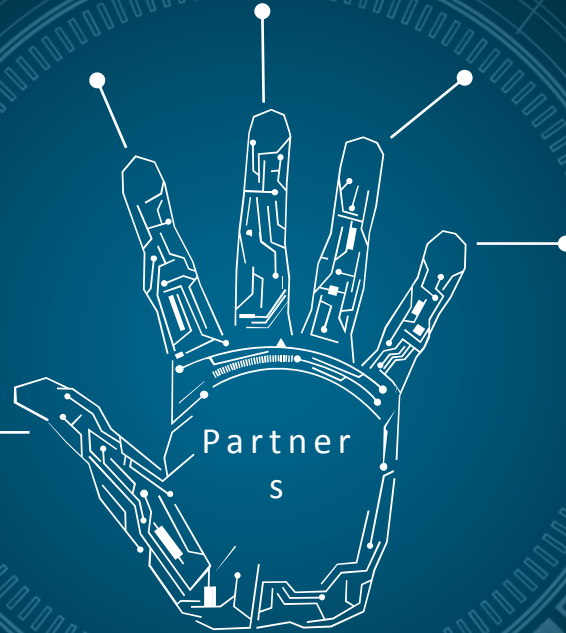
GOVERNMENT

INDUSTRY

CIVIL SOCIETY

AFRICA &  
INTERNATIONAL  
COMMUNITY

BUSINESS





Questions?  
More Information?

*Presenter: Ilse Karg  
CD: Future Industrial  
Production Technologies  
the dti  
South Africa*

[www.thedti.gov.za/industrial  
development/Fourth Industrial Revolution](http://www.thedti.gov.za/industrial-development/Fourth%20Industrial%20Revolution)