



# Fourth Industrial Revolution (4IR) and Digital Economy

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**Destination Digital Africa: Preparing our youth for the future**

# Fourth industrial revolution (4IR)

- ✓ Previous industrial revolutions liberated humankind from animal power, made mass production possible and brought digital capabilities to billions of people.
- ✓ The Fourth Industrial Revolution refers to the emerging technologies, which are blurring the traditional boundaries between the physical, digital and biological worlds
- ✓ 4IR provides the world with the potential to regenerate the natural environment, connect billions more people to digital networks and dramatically improve the efficiency of organizations.
- ✓ 4IR is being driven by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, quantum computing, Neuro-technological brain enhancements and genetic editing.

## 4IR

The fourth industrial revolution is really about: standards, accuracy and tolerance.

Ensuring that level of the quality of technology is high and precise and optimization of design to ensure a positive impact on the yields coming out of manufacturing.





# 4IR Technologies and Africa: some priority Technologies

**precision farming.** It uses, among others, geographic information systems, remote sensing technologies, robotics, the Internet of Things and big data. This allows for precision planting, irrigation and weeding.

**Sensor technology:** Sensors are used to detect events or changes in the environment and send real-time information to other electronics, enabling producers to farm more effectively improve farm security and for product traceability

**Artificial intelligence:** Sensors around the farm give real-time updates to the AI system, which is trained to send the correct response to guide a farmer toward 'perfect' farming and when used at scale, would create tremendous efficiencies.

**Blockchain technology** will securely and transparently track all types of transactions. Every time a product changes hands, the transaction is documented, creating a permanent history of a product, from manufacture to sale

3D printing to enable orders manufacturing on demand and in smaller quantities

# Is Africa adopting 4IR Technologies

**eNose sensor** for tea processing (Uganda), which supplements current tea-processing procedures using low-power sensor devices to determine optimum levels of tea fermentation

**Farmerline**, based in Ghana, is an SMS-based service that provides small-scale farmers with up-to-date agricultural information and advice.

Kenyan-based **M-Farm** also used big data to provide information on weather and crop prices. M-Farm analyzes ten years of historic data from Famine Early Warning System dataset on agroclimatology

**Blockchain technology:** In Kenya, Twiga Foods, a business-to-business logistics platform for kiosks and food stalls in Africa, formed a collaboration with IBM scientists in Nairobi to build and test a blockchain-based micro finance lending platform.

**M-KOPA** in Kenya is supplying households with solar home systems and electricity on flexible payment terms. It leverages mobile technology, Internet of Things (IoT) enabled devices, and Machine Learning to understand consumer behavior and provide continuous improvement to its product range

# 4IR and Skills development

Unemployment has been a challenge partially rooted in the growing mismatch between youths' skills and employer needs. If unaddressed, the problem will intensify in the 4IR

We must remember that 4IR will change the skills content for many jobs e. g. occupations with process driven tasks like accounting must now embrace strategic initiative approaches because AI will take over most process driven tasks

## What skills are needed for 4IR

01

### Workforce Readiness

Foundational to individuals' entry and ongoing success in the workplace, ranging from initial job search to maintaining continuous employment

02

### Soft Skills

Personal attributes, social skills, and communication abilities that support interpersonal relationships and interactions with others

03

### Technical Skills

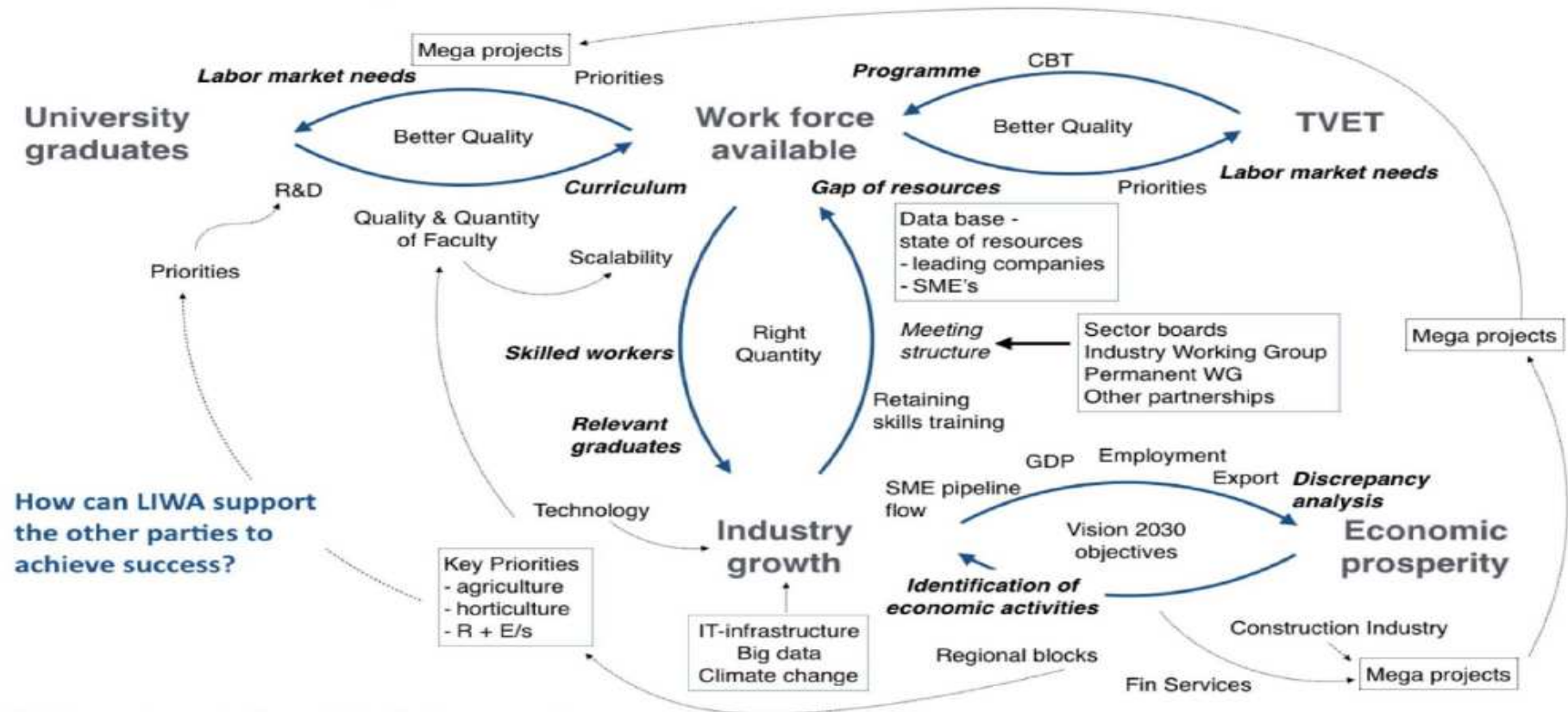
Knowledge and capabilities to perform specialized tasks

04

### Entrepreneurship

Knowledge and abilities that support success in creating and building a workplace opportunity or idea

# LIWA - Linking industries - academia framework





# 4IR & Environmental Sustainability, social and economic development

01

## ENVIRONMENTAL SUSTAINABILITY

❖ Fourth Industrial Revolution technologies are showing promise at reshaping urban. 4IR innovations support:

- Smart planning and construction to make better use of the built environment.
- Sustainable transport and logistics to increase mobility and connectivity.
- Clean energy and utilities to improve efficiency of urban systems and the environment.

02

## SOCIAL DEVELOPMENT

- promote gainful employment
- has the potential to raise income levels and improve the quality of life for all people “World Economic Forum Global Risks Report 2017”
- Improved health care

03

## ECONOMIC DEVELOPMENT

4IR innovations will enhance , innovation and efficiency. As we move towards production characterized by autonomous, self-organizing factories and integrated or hyper connected production systems.

4IR is expected to create \$3.7 trillion in value by 2025 “World economic Forum next economic engine paper 2018”

# Where do we go from here

- ❖ Harmonize occupational standards to create mobility across different countries.
- ❖ Adapt the education curricula to reflect the skills that will be in demand in the future
- ❖ Create centres of excellence to deepen talent pool.
  - ❓ The talent gap is getting larger in part because of the new technologies that are creating a greater need for skilled labour.
  - ❓ Advancements in technology not only require new employee skills, but they also shorten the shelf life of those skills and increase the need for continuous training
- ❖ Institute and fund active labour market programmes - there will be many changes in the labour market
- ❖ Develop policies that ensure lifelong learning - in the 4IR era learning must be continuous
- ❖ Provide access to electricity to ensure a firm foundation for future growth; 4IR Technologies rely on electricity.

# Where do we go from here

THANK YOU