Rethinking development with a re-conceptualised innovation system framework to reform, transform and perform the integrated, smart, sustainable and innovative Africa

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Outline

- Inspiration
- Leap frogging
- Catch up & Beyond Catch Up
- Join and break
- Creating Africa’s own value chain
- Managing the 4th Industrial Revolution
- Concluding Remarks

Inspiration

- We must develop a comprehensive and globally shared view of how technology is affecting our lives and reshaping our economic, social, cultural, and human environments. There has never been a time of greater promise, or greater peril."(Boosting Africa's digital economy

Transform Africa Summit)

- Our intuition about the future is linear. But the reality of information technology is exponential. If I take 30 steps linearly, I get to 30. If I take 30 steps exponentially, I get to a billion
- There can no longer be two futures, one for the few rich and the other for the very many poor. There will be one future or not at all
- Ex Africa semper alquid Novi.. Out of Africa comes always something new.. Julious Ceasor
- Let Africa join the digital age by doing the things that have been done never before!

inspiration

- “Imagine a robot capable of treating Ebola patients or cleaning up nuclear waste.”
- “The Fourth Industrial Revolution is still in its nascent state. But with the swift pace of change and disruption to business and society, the time to join in is now.”
- Africa needs networked industrial structural sustainable development path to deal with and respond to the 4th Industrial revolution
- How to reach the knowledge, digital, disruptive and exponential technology stage
- A new social technology, social innovation and social entrepreneurship urgently needed.
- Beyond catch up, beyond linear, leap frogging , beyond aid, loan and all
- How can we navigate the complexities of the current global value chain
- To manage the GVC by learning when to link and when to break and create a dynamic and carbon heavy diet free developed economy and society
- How to deal with the international division of labour

4th Industrial Revolution Challenges

1.From agriculture, raw material and minerals to manufacture and industry

2. Can industrialist ion come with engaging in the global value chain by exploiting comparative advantage

3.Exporting raw material and importing manufactured products?

4. Trying to upgrade production of raw materials through the existing GVC

5.The developed world is said to be de-industrialising

6.Employment from manufacturing is said to be declining

7.Affecting trade between the developed world and Africa

Value-chain upgrading for Africa

- How to do it
- Through leap frogging
- Catching up with the product life cycle
- Going beyond catch up
- Breaking the value chain
- Joining the GVC
- Finding co-evolution?
- To move from the raw material;
- Agricultural
- Mineral value chain
- To find ways to reach the 4^{th} industrial revolution
- How to manage the GVC remains a challenge?

New Synthesis: Horizon2020

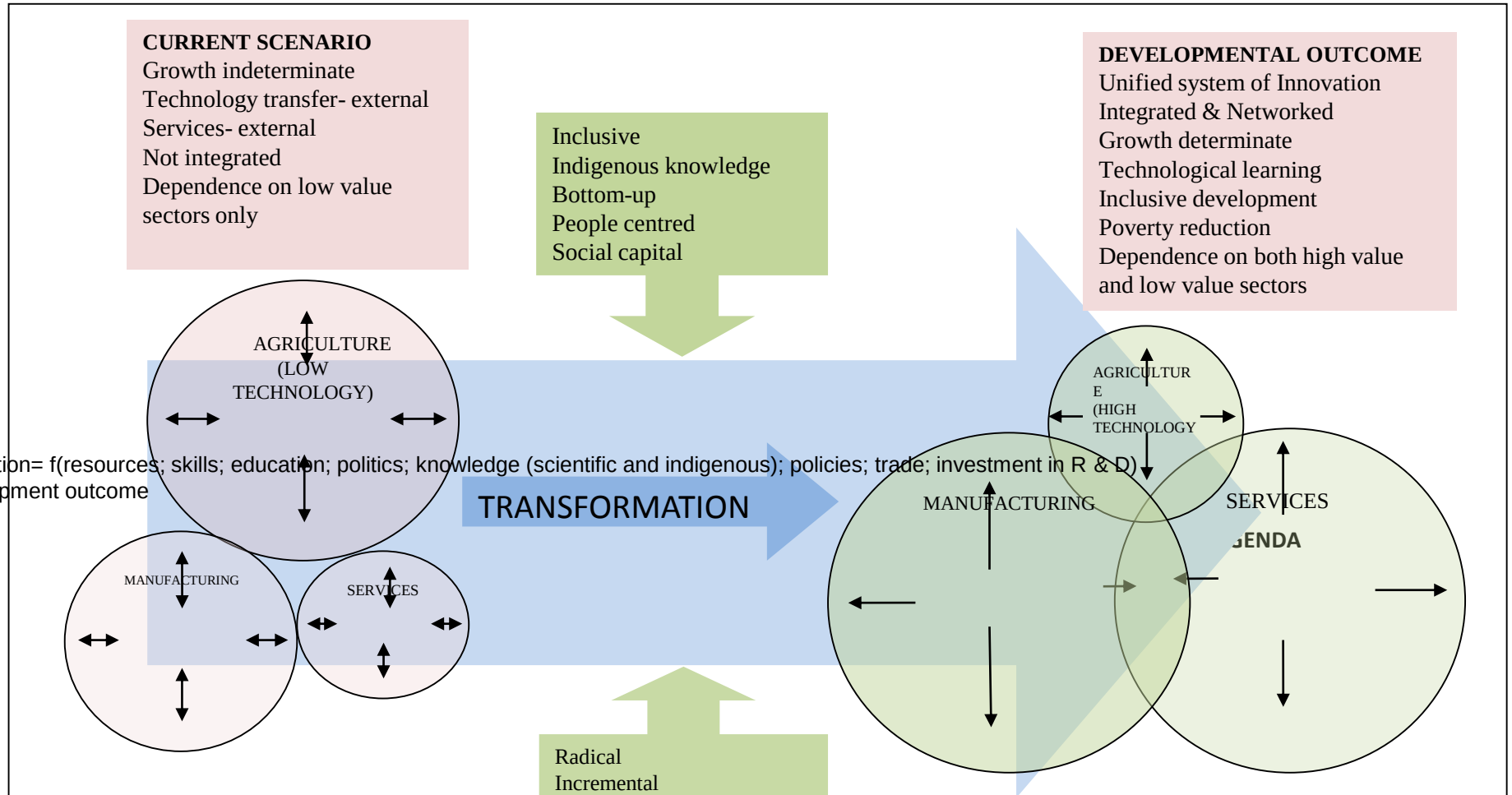
- Combine imagination and knowledge
- To deal with GVC
- The 4th Industrial Revolution
- Applying a pan- African Unified and networked innovation System
- To manage the GVC by learning when to link and join and when to break and create a dynamic economy.

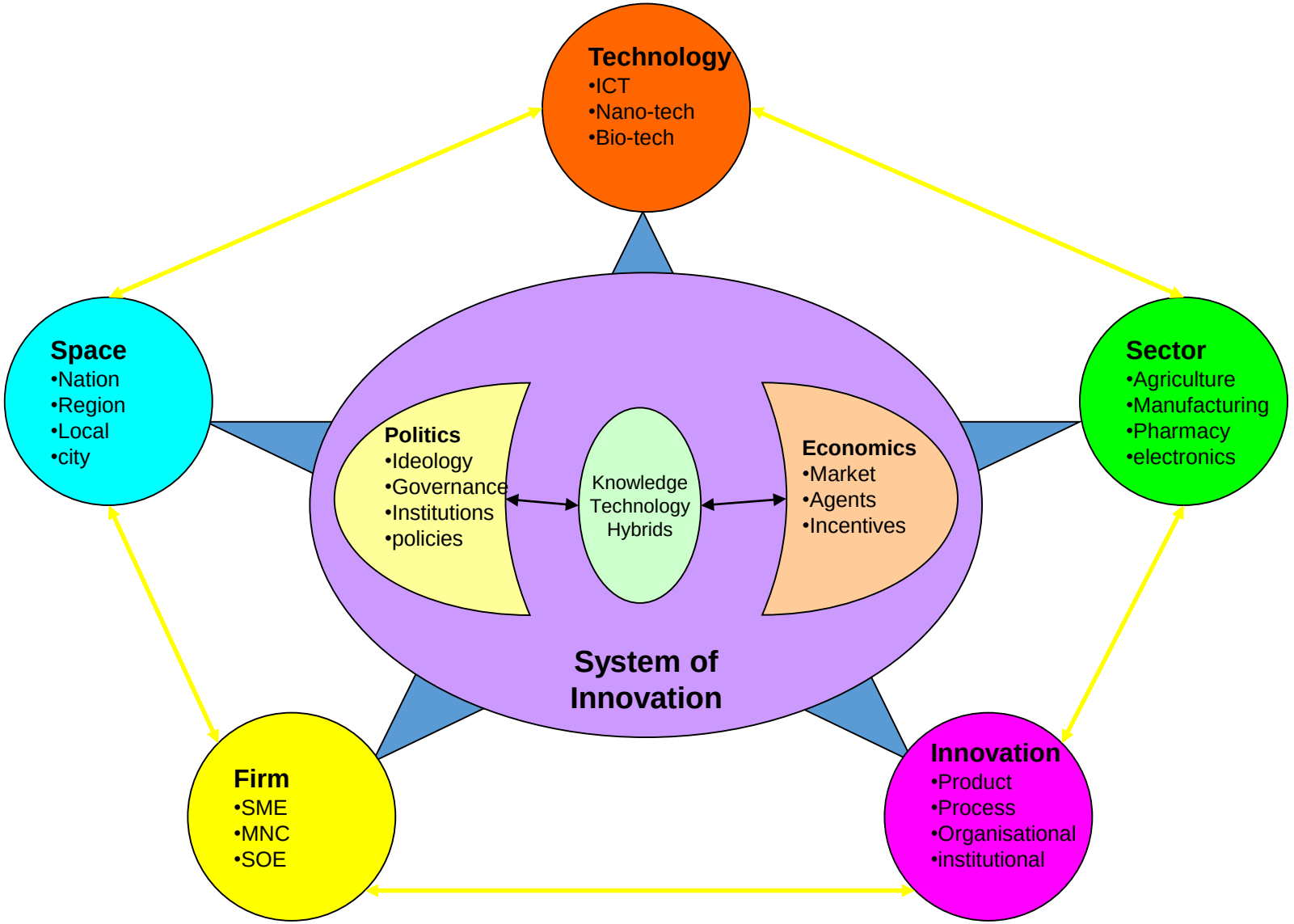
EU-Horizon 2020

Networked System of innovation

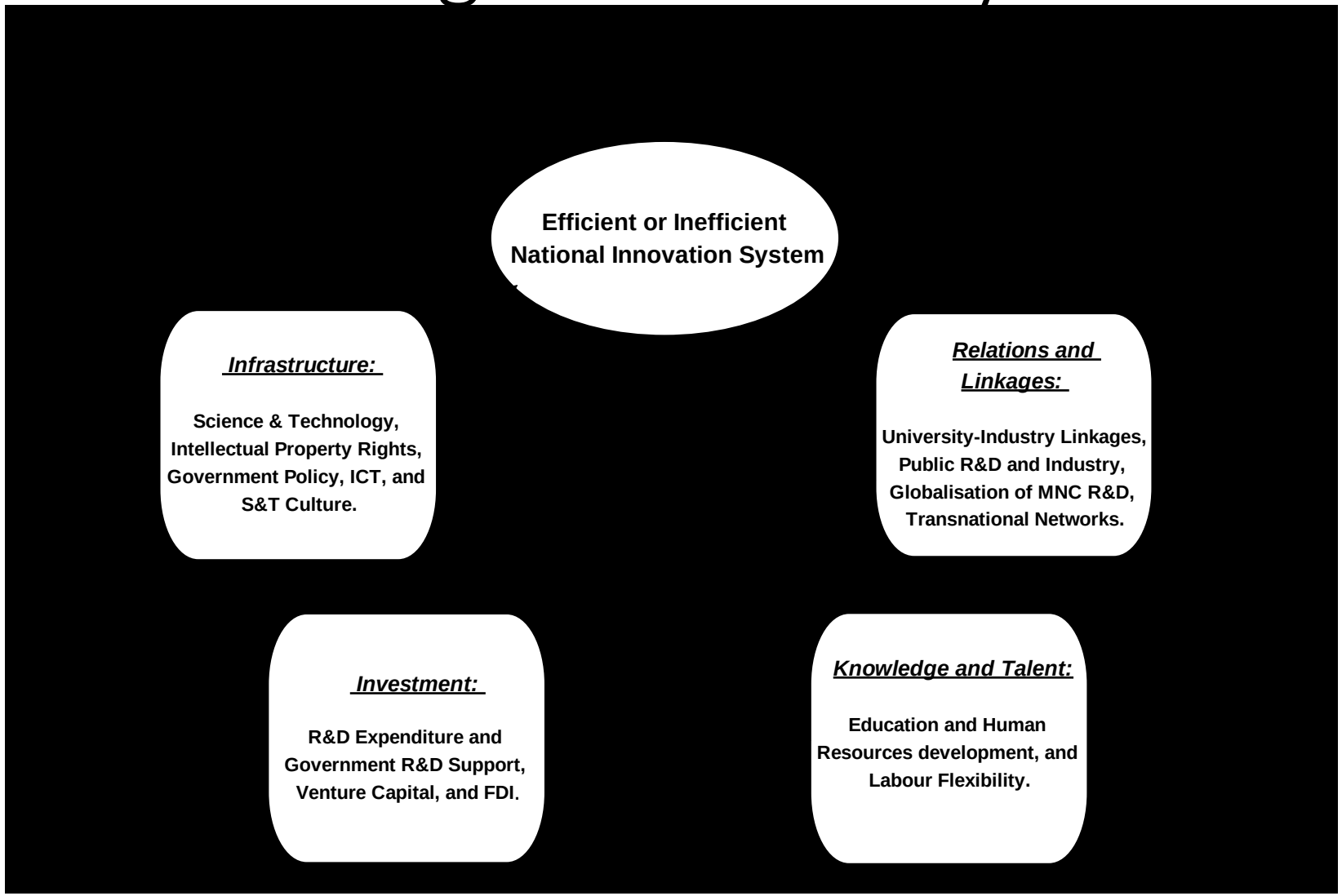
- To move from low level of GVC to high level
- Africa Needs to establish a networked system of innovation
- A national system of innovation to promote a national system of production
- To enable a system creation to produce what Africa consumes, and to consume what Africa produces
- To create Africa...wide producers and users interactions (Lundvall:85)
- To embed knowledge creation,innovation, learning in Africa's institutions,societies
- To inject a total learning capability, comptence and innovation culture in Africa
- To retain African resources to stimulate African development

Model for Transformation

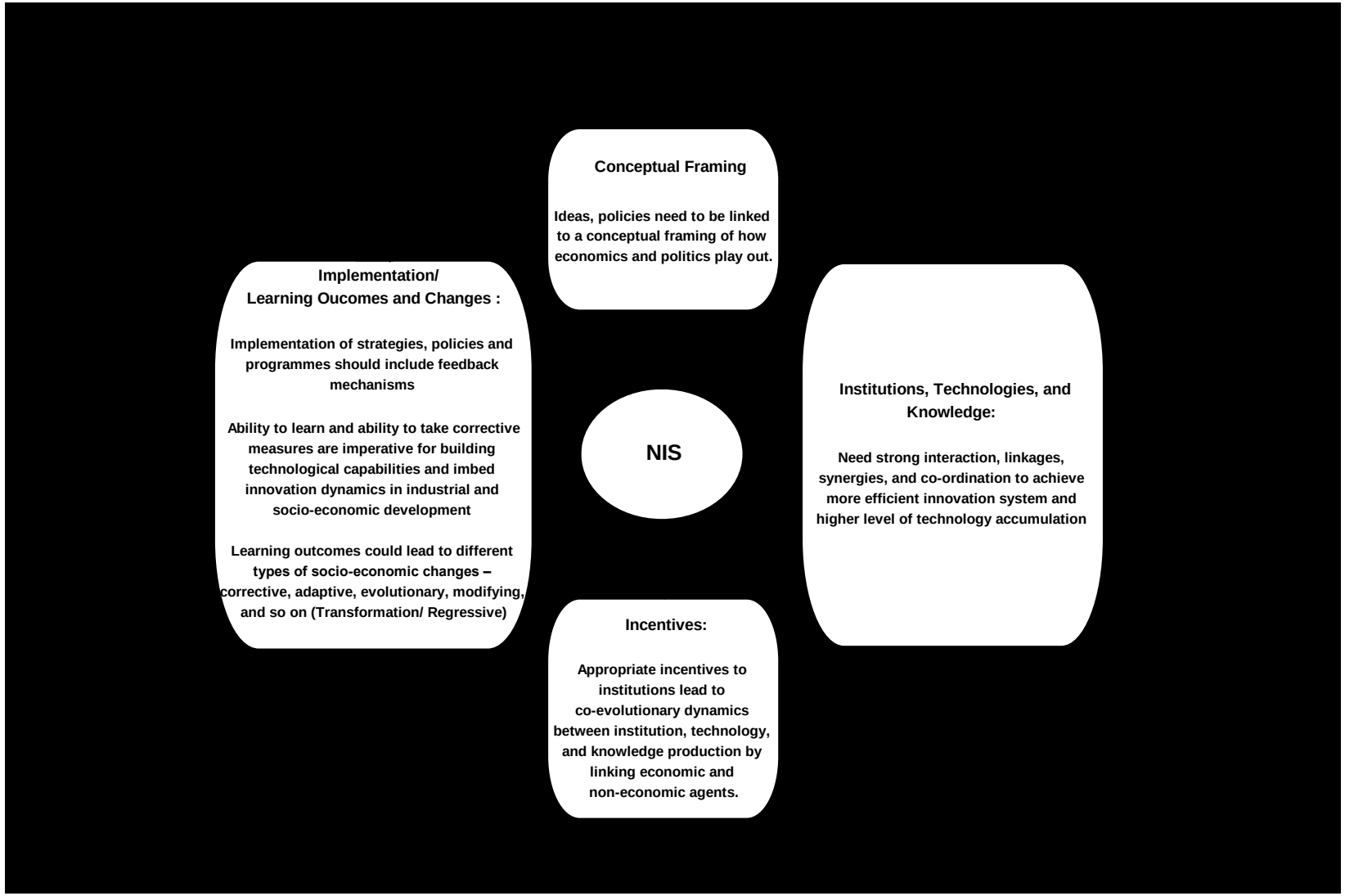



Technology
•ICT
•Nano-tech
•Bio-tech
Space
•Nation
•Region
•Local
•city
Sector
•Agriculture
•Manufacturing
•Pharmacy
•electronics
Politics
•Ideology
•Governance
•Institutions
•policies
Knowledge
Technology
Hybrids
Economics
•Market
•Agents
•Incentives
System of
Innovation
Firm
•SME
•MNC
•SOE
Innovation
•Product
•Process
•Organisational
•institutional

Networking innovation system



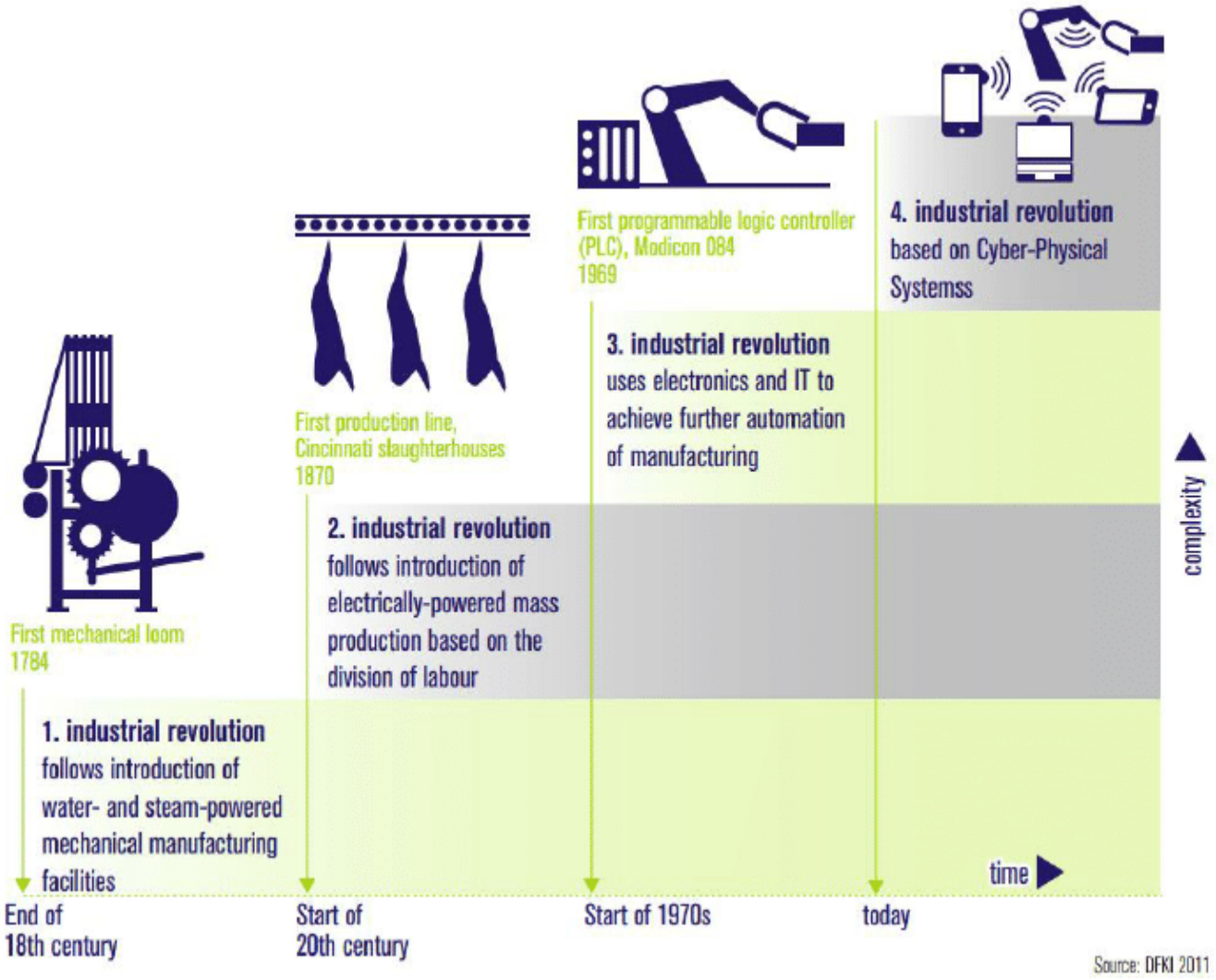
Network all the Relevant Parts



African Resources Scenario

Africa is Rich and the Size defying its presence in the map!

4-stage Industrial Revolution



4IR:
Powered by a whole range of exponential technologies with potential to change our world as we know it;

Dawn of disruptive technological revolution changing almost every part of our lives, impacting all disciplines, economies, industries, jobs, relationships, and entire region
Even challenge our ideas and what it means to be human;

5IR => Pervasive Nanotechnology application

Africa ‘s Digital and Cultural Revolution

- African transition from margins to the mainstream of global economy, digital technology is playing an increasingly significant role
- African Silicon Valley-inspired Silicon Savanah emerging across the continent;
- A recent study highlights the existence of about
  - 200 African Innovation Hubs,
  - 3500 new tech related ventures, and
  - US$ 1B venture capital to pan African movement of Start-up entrepreneurs.

Africa ‘s Digital Revolution

- Not only Digital revolution (DR), but Africans need to change to handle it
  - Digital revolution could spark Cultural Renaissance.
  - Digital technologies are helping young Africans forge a sense of cultural cohesion.
  - That could lead to continental integration, enabled by conducive socio-economic and infrastructural environment.

Thinking out of the Box

- In the 4th Industrial revolution
- Can Africa catch up?
- The Global value chain restricts catching up
- And leap frogging
- We need to discover how to manage the global value chain and how to guide it
- And where to break away from it
- And where to link with it
- Africans need a cultural revolution to handle the digital revolution

Africa ‘s Digital and Cultural Revolution

- While exponential technologies driving force behind the DR, its is African people who can determine the direction it will take.
  - Full exploitation of African Demographic dividend – The youth demography
  - African youth development is cardinal, placing premium on Resilience and Employability
  - Incorruptible Leadership capability
  - Requires rethinking our Education System, that is more Education System for Africa, rather than African Education System

New Approach Needed

Africa needs to construct an integrated, networked and unified sustainable development innovation system path by coming together rather than by going alone facing the prisoners' dilemma being caught within the boundaries of each of the 55 states. What to produce and where to produce and how to add value to which minerals and what market in Africa can be created are much needed to address.

A new innovative approach to handle the rich resources and how to create both production applying high technology and innovation and creating consumption by making the African production to consumption value chain is much needed to address now more than at any time as the global value chain is changing dramatically by the 4th Industrial Revolution

New Approach Needed

- Establish and implement an appropriate Social Technology, Social Innovation and Social Entrepreneurship
- Accumulation and Transfer system;
- Promote research that is geared towards technology learning

Develop, promote and commercialize useful indigenous knowledge and technologies;

Create Innovative Africa :Let us search a more robust theoretical alternative that is open to reinstating in some way the core issues of what should be the African quest for structural and sustainable, smart and socially entrepreneurial transformation in the current mobile, internet and digital 4th industrial revolution for Africa to navigate the Global value chain .

Some Initiatives

African talent hub

Pan-African Federation in 30 years

Not in 2063!!!

African Solar Energy Network

Innovation System Road Maps and White Papers

Stisa 20024

AUY4C

AIS

AUSC

AUWC?

Concluding Remarks

Create Innovative Africa :Let us search a more robust theoretical alternative that is open to reinstating in some way the core issues of what should be the African quest for structural and sustainable, smart and socially entrepreneurial transformation in the current mobile, internet and digital 4th industrial revolution for Africa to navigate the Global value chain .

- Smart Green,Inventive,Creative,Innovative,Integrated Developed Africa with socially entrepreneurial reform, perform and transform
- Combine imagination and knowledge to deal with GVC of the 4th Industrial Revolution by applying a pan- African Unified and networked innovation System to manage the GVC by learning when to link and when to break and create a dynamic and carbon heavy diet free economy
- Not to continue going for exporting raw materials, minerals and agricultural produces but digitally value added manufactured products.

- Asante Sana & Ameseganalehu

Africa ‘s Digital and Cultural Revolution

- Rebuilding African scientific talent and return to the pinnacle of innovation
- Driving towards Neil Turok’s postulation , “the world’s next Einstein will be from Africa”
- Following science-driven sustainable development
- We need to invest in fixing the knowledge pipeline; Indigenous knowledge creation; putting knowledge into practice.

Africa ‘s Digital and Cultural Revolution

- The Next Einstein Forum initiative of the African Institute for Mathematical Sciences innovative products setting the pace:.
    - Somali’s Abdigani Diriye who created a block-chain-enabled lending platform in Kenya
    - Nigeria’s Peter Ngene with nanotechnologies enabled improved renewable energy and hydrogen-based eye sensor that detects lactose intolerance; and
    - South Africa’s Viner Coetzee, non-invasive measures of health for malaria detection

Tech Innovation: Africa becoming a player in the Digital Revolution

- Google Africa Launchpad Accelerator Africa programme launched in Lagos resulting in12 start-ups from six countries is promising:

  - **Kudi, founded by Yinka Adewale and Pelumi Aboluwarin — Nigeria .**
    - Kudi allows people to send money and pay bills online via multiple channels — web, messaging, mobile apps and a network.

  - **SwiftVEE, founded by Andrew Meyer, Russel Luck and Alexander Molde — South Africa**
    - SwiftVEE is an independent technology platform for the livestock sector, inspired by South Africa's crippling droughts, which have an impact on livestock mortality.

  - **OkadaBooks, founded by Jude Nwoko and Okechuckwu Ofili — Nigeria**
    - This platform serves as a marketplace that allows African users to get their work published quickly — the same app can be used to distribute and sell the content.

Tech Innovation: Africa becoming a player in the Digital Revolution

- **Teheca, founded by Ruyonga Daniel and Namugambe Asha — Uganda**
  - This is a health-tech company using mobile technology to ensure a better experience for mothers during pregnancy, delivery and postnatally.

- **ThriveAgric, founded by Uka Eje and Ayo Arikawe — Nigeria**
  - ThriveAgric connects farmers to buyers through crowdfunding initiatives

Thinking out of the Box

- The seed of solution to any problem is in the problem

- Cure for any disease is in its origin.
- Without unity there is no future for Africa (**Mwalimu Julius Nyerere)**

- The Marathon:
  - 1IR => 2IR = 200 years
  - 2IR ➔ 3IR 50 years
  - 3IR ➔ 4IR 30 years
  - 4iR ➔ 5IR 15-20 years

  - Quadruple Helix required
    - Stakeholders collaboration
    - Living Lab approach

  - Leap frogging rather than linear development