Integrating STEI in Re-Designing Africa's Development Agenda

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Outline

- Inspiration
- Problems with the Current African Development Agenda (ADA)?
- Variables for Re-Designing the Development Agenda
- Useful Models for ADA
- Concluding Remarks

Inspiration

- ”The future is not some place we are going, but one we are creating. The paths to it are not found but made, and the activity of making them changes both the makers and the destination.” (John Schaar)

- Africa was old , before Europe was born! (Africa History Project!)

Inspiration

- Introducing our book: Putting Africa First: The Making of African Innovation Systems, 2003; Chris Freeman said:”Especially at this time of global economic instability, this work is needed more than ever to ’put the last first’.Then the stone that the builders rejected may indeed become the cornerstone of the arch.”

Challenges Facing Africa!

- Slavery formally has ended
- Colonialism formally has ended
- Apartheid formally has ended
- Divide and rule continues under different guises
- External competition to grab African resources is still on
- External intervention still a danger
- Forcible regime-change continues (e.g. Libya and Mali, possibly others!)
- Above all the independence imagination is still under threat!

Problems of African Development

- Poor social capital that makes finance, physical and other capitals to disrupt social cohesion
- Lack of adequate capital of the mind or human capital: the gold in the head needs to excavate the gold in the mines!
- Prevalaence of donor-prenurship
- Rent-seeking- prenurship
- Tender-prenurship

Problems with theAfrican development Agenda

- Agriculture-manufacture-services are weakly integrated in nearly all current African States
- Agriculture remains primary occupation for the majority African population, manufacturing grows very unevenly and slowly, service caters mostly for outside consumers
- The informal and formal economies are bifurcated and not connected
- The informal is very large, the formal is smaller in most states.

- SET is not embedded systematically to create products with added value and unite the African economic system at any level at the moment!
- The world is going through a data revolution that is creating products with senses, while Africa remains an economy mainly and largely that exports primary resources: minerals and agriculture!
- Can we truly say we have an African economic growth strategy? Or each of the states have developed a strategy that works for Africa and the well being of the people?

- In addition: Indigenous knowledge is not mapped and researched systematically
- SET is not communicated or exchanged at the community level to upgrade and develop the community level knowledge
- Knowledge that is useful has not been promoted to innovation systematically
- Those who have the knowledge do not often know the economic value of what they own
- There is thus a great need to excavate this knowledge
- And develop indicators appropriate to this knowledge
- The African research area is still waiting to be made!

- There is still a job to be done: to intergrate agriculture, manufacturing and services
- Linking community level indigenous knowledge with SET and design
- From a resource to a knowledge, learning, innovative and competent independent economy
- Connecting or articulating informal with formal economy
- To use SET infrastructure, training and research to build an integrated learning, competent African national economy.
- To develop a unifying economic growth strategy that works for Africa!

New Approaches

- There is a need to open the door for theories that are grounded and contexualized in the African setting and that can serve also as lenses to illuminate the empirical reality and specificity of the African situation
- Such appreciative reorientation in anchoring the African development agenda would require the following to be explored as new conceptual lenses for examining the African development dynamics:

Variables Necessary for Re-Designing the Development agenda

- Inclusive
- Sustainable
- SMART(Specific, measurable, action oriented, realistic and timely)
- Integrated horizontally in order to manage vertical links with the global economy
- Nation-state vs. State-nation
- Learning, innovation and comptence building systems
- Removing entrepreneurishp drought
- Removing systematically tenderpreneurship,donorpreneurship & rent seeking preneurship
- Wellbeing anchored and empowering
- Strong social and human capital anchorage
- Competition with collaboration
- Building a shared African identity

To achieve

- ***An ability to integrate the various state and economic policies to inform an integrated African development agenda or shared project that centres on making sure an African horizontally inter-linked economy fully emerges by building the capability to valorise external links to build the African economy.***

Conceptual Re-Framing

- *The theory of productive power which argues that the causes of wealth are different from wealth itself or making wealth from exporting raw and importing cooked need changing to less raw and more cooked exports and less cooked imports!*
- *Knowing and agreeing to building the African system of science, technology, engineering and innovation by reducing or even eradicating the current collaborative distance amongst the key stakeholders in Africa*
- *Knowing how to combine Indigenous knowledge with knowledge gleaned outside Africa*
- *Knowing how to move from the domination of knowledge or technology transfer to knowledge exchange[1]*
- [

Conceptual Re-Framing

- ***Knowing how to engage in smart, inclusive, sustainable and integrated African structural transformation by a well crafted and managed synthesis of the economic, social,cultural, environmental and political processes.***
- ***Knowing how to be far when near the global economy and how to be near when far from it as well***
- ***Creating structural transformation from agriculture to manufacture and services through a co-evolutionary dynamics rather than a linear economic development logic***
- ***An ability to integrate the various state and economic policies to inform an integrated African development agenda that centres on making sure an African developing horizontally inter-linked economy is made fully and not as it is currently practised by retaining at a disporportinate scale the vertical links external to Africa based on exporting raw materials and importing services and luxury products and merchandise.***

Re-Framing with List's Productive Power

- List is right in his claim that a national political economy facing constraints needs to find a way to organise transformation!
- Those that trade in raw materials and agriculture remain underdeveloped
- Those that build productive power have made it (e.g.USA, Germany, Japan, East Asian Tigers)
- The lesson is clear: if a nation wants to develop, it has to organise its national system of political economy with a logic of stimulating rapidly and comprehensively productive power.
- Otherwise it can have very rich minerals and agriculture and territorial size, but will remain underveloped!

List's strategy

- Industralisation and manufacturing to be driven by a capable nation and state
- Incentives to those who take risks of creating new industries
- Building the capital of the mind and training and spreading education to cover comprehensively the nation as a whole
- Choice of industries for protection on the basis of knowledge, experience and linkages with the rest of the national economy (p.69)
- Development of agriculture necessary to industralise

Re-Framing With Systems of Innovation

- The creation of the national system of production and consumption
- Knowledge,Learning, innovation and competence building skills (Klics)
- Networking ideas, economies, actors and institutions
- Bringing about resource circulations to break lopsided and uneven development between urban and rural areas, formal and informal activities in African various categories of economies.
- Learning interactions emerging from the process of applying science, technology, engineering and innovation into production
- The influence of the social, cultural and institutional particularities in making science, technology, engineering and innovation in changing, creating, mobilising and distributing resources.
- The system of innovation acknowledges the significance and relevance of the African varied spatial context for economic change despite the constraints of globalisation.

But a Refrain ?

- In Africa, the nation is still a unit that has not been fully realised. The system is also still in the process of making and cannot be assumed it has been fully made. Innovation itself has many dimensions from the broad grassroots and community level to that driven by R & D. In a context where the concepts are contested, it remains challenging how to frame and use the NSI without running into the dilemma of imitating rather than creating and making the national system.

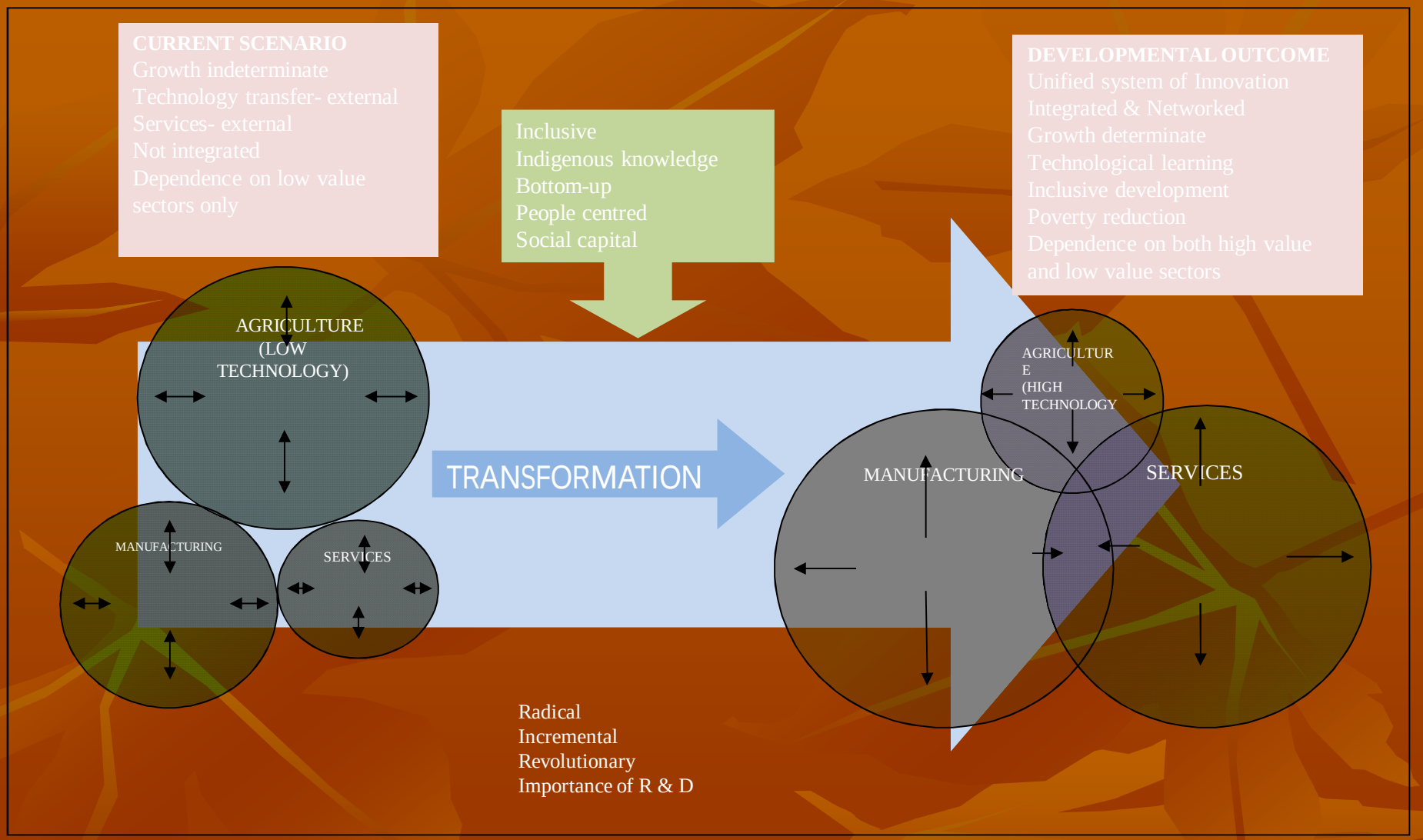
In the African Context?

- It may be time for a shift of focus from NSI (national systems of innovation) to NIS (Networked Innovation Systems) with boundaries of various natures giving way to the facilitation and incentivisation of networks that can or be often self-organising and self-maintaining. That is open for debate as the states in Africa pretend they are nations and very often tend to produce National Innovation System plans!

Models for re-designing the African development agenda

- Conceptual framework
- Realising efficient linkages &interactions
- Unifying all the relevant components of the system
- Overcoming the challenges
- From SETI to Outcomes
- Knowledge assimilation and exchange

UNIFIED INNOVATION MODEL FOR RE-DESIGNING THE DEVELOPMENT AGENDA



Innovation= f(resources; skills; education; politics; knowledge (scientific and indigenous); policies; trade; investment in R & D)
Development outcome

Figure 1: Major Elements of National Innovation System (NIS)

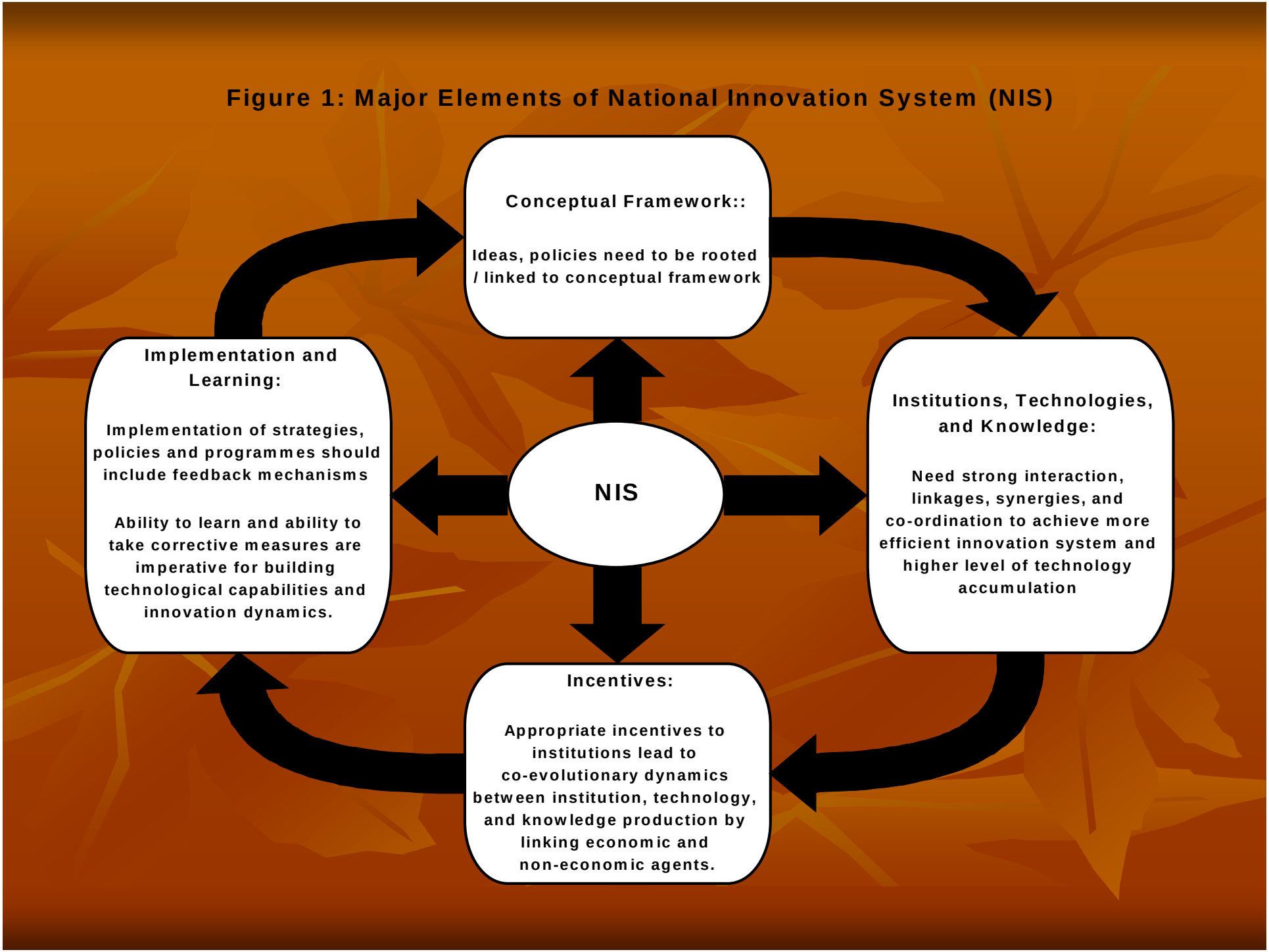
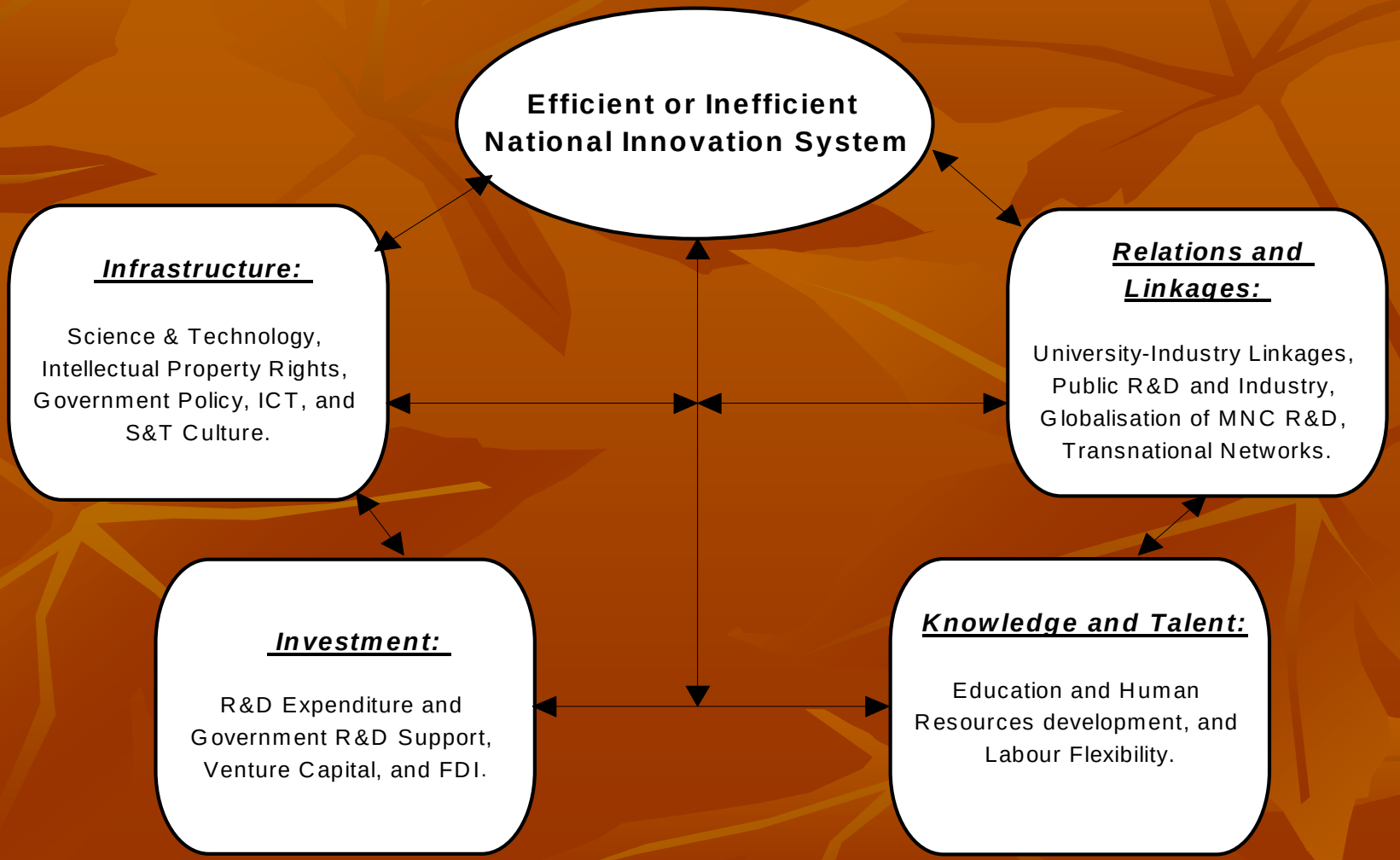
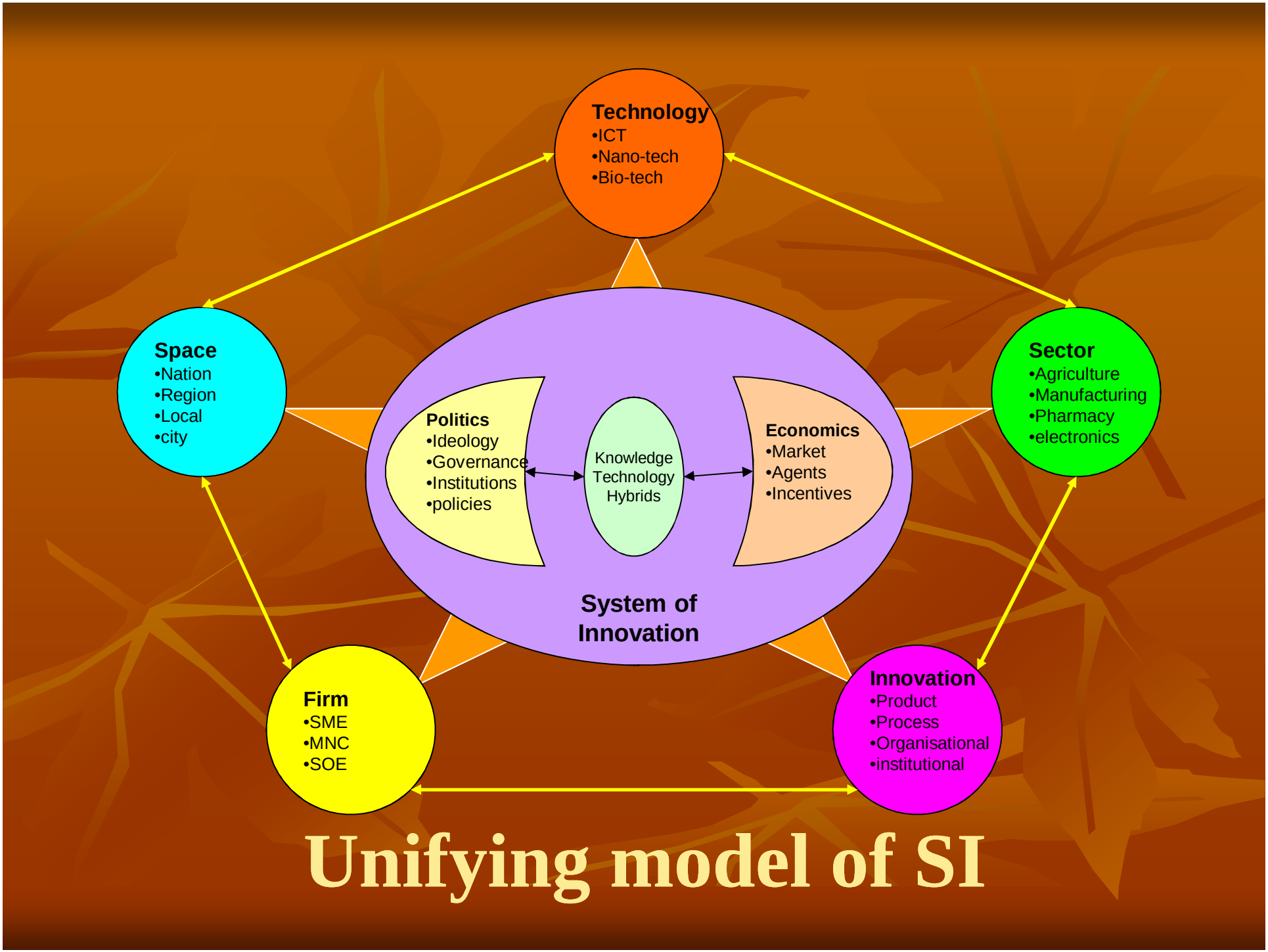
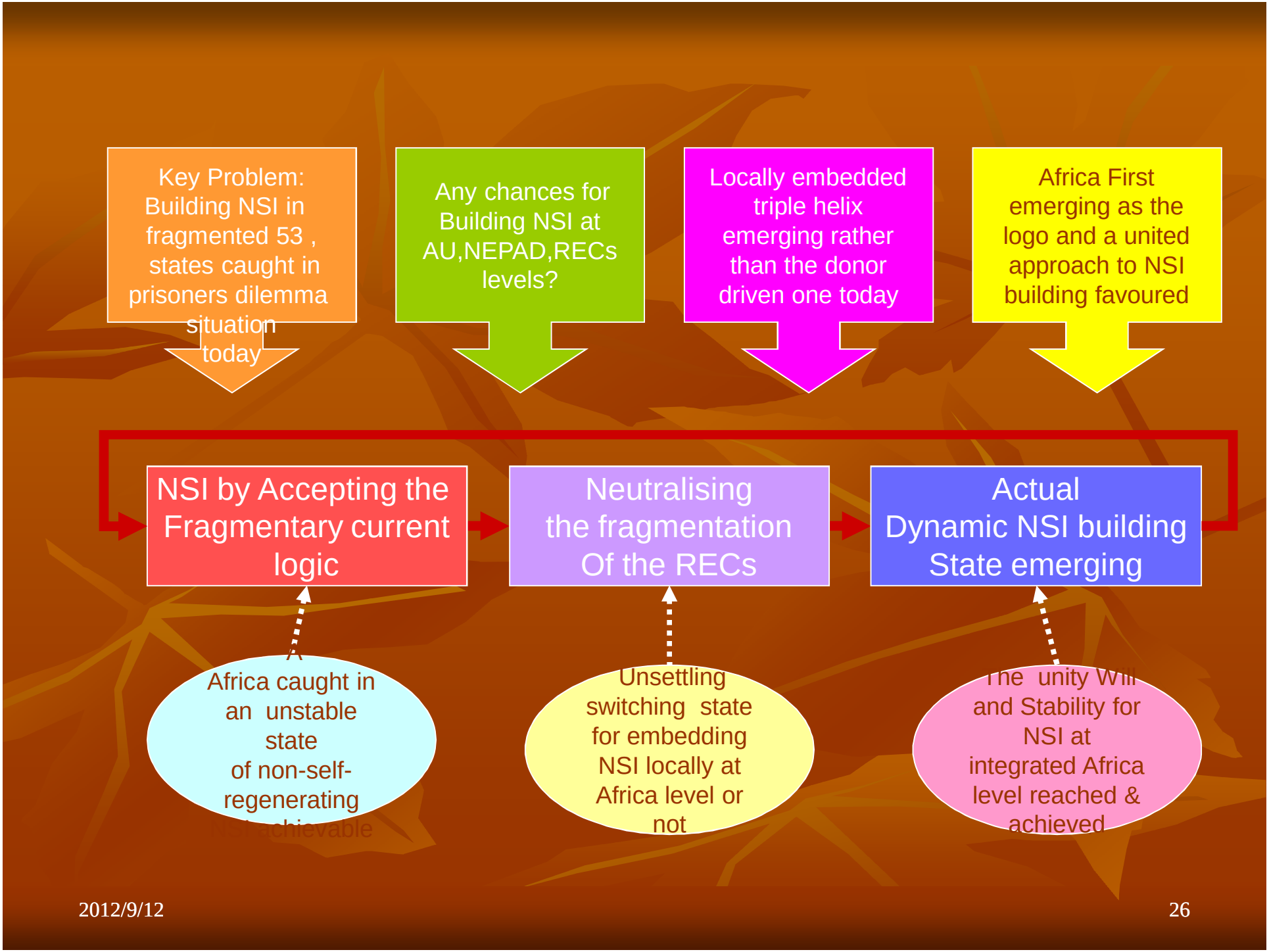


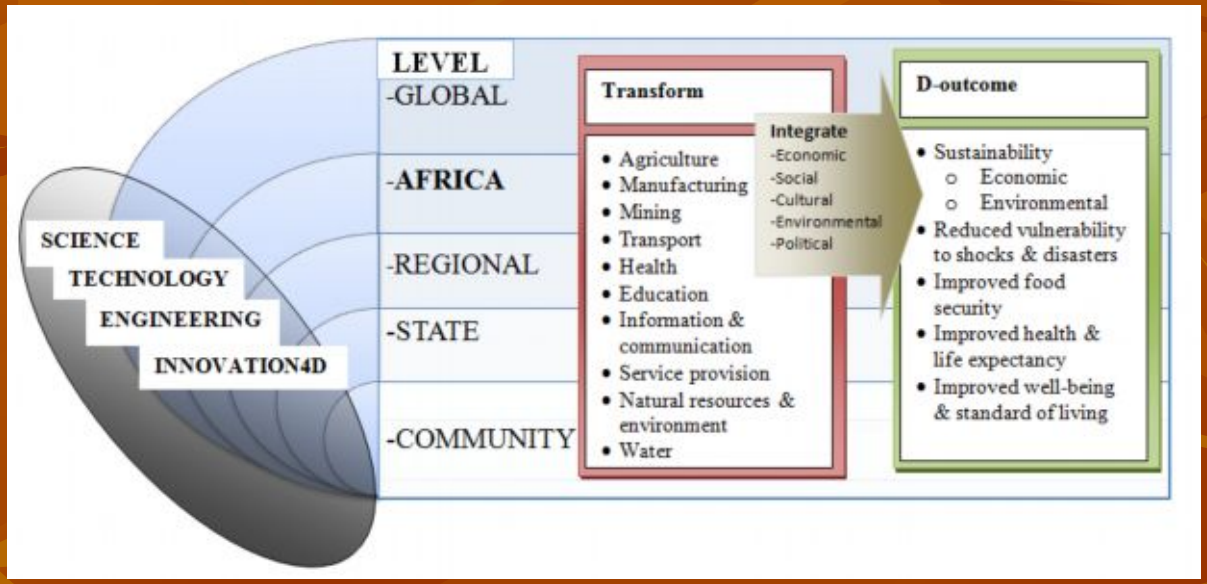
Figure 2: Linkages between Institutions, Technologies, Knowledge and Incentives in NIS

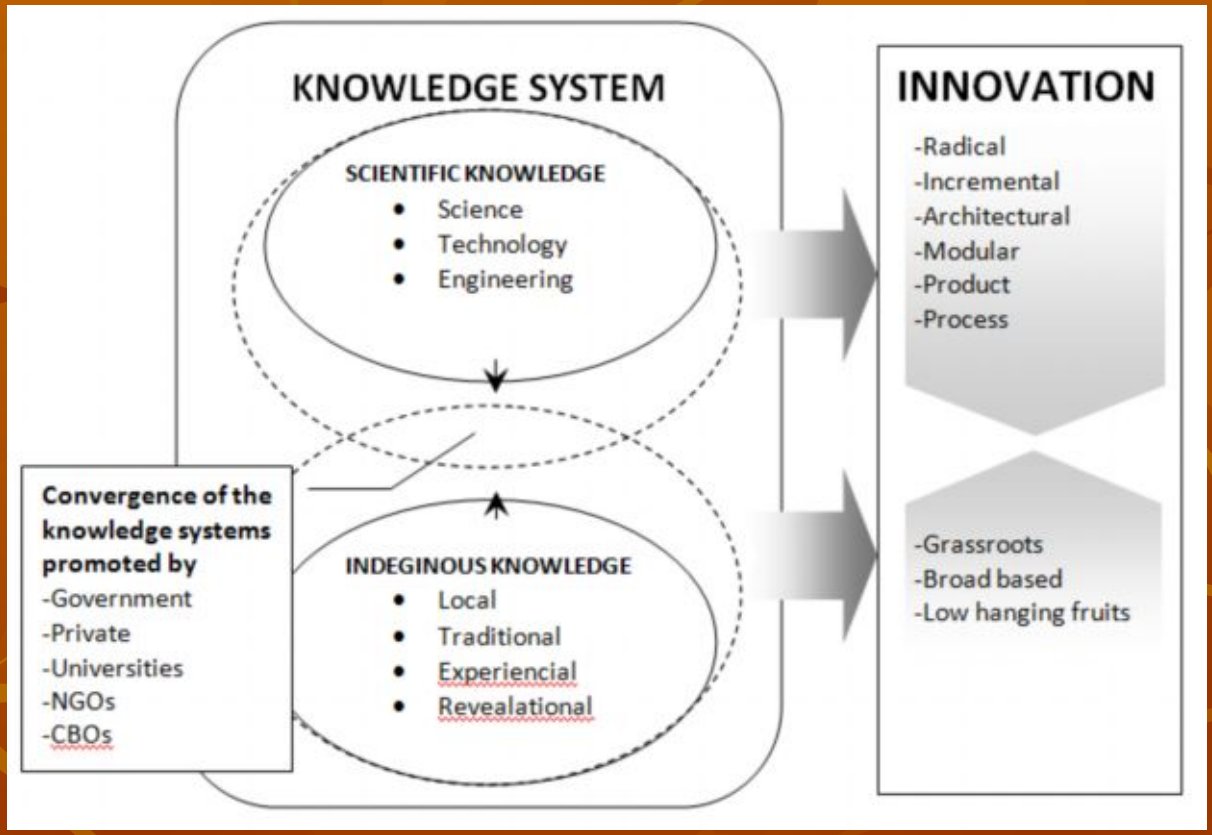




Unifying model of SI


Key Problem: Building NSI in fragmented 53 , states caught in prisoners dilemma situation today
Any chances for Building NSI at AU,NEPAD,RECs levels?
Locally embedded triple helix emerging rather than the donor driven one today
Africa First emerging as the logo and a united approach to NSI building favoured
NSI by Accepting the Fragmentary current logic
Neutralising the fragmentation Of the RECs
Actual Dynamic NSI building State emerging
A Africa caught in an unstable state of non-self-regenerating
Unsettling switching state for embedding NSI locally at Africa level or not
The unity Will and Stability for NSI at integrated Africa level reached & achieved


SCIENCE
TECHNOLOGY
ENGINEERING
INNOVATION4D
LEVEL
-GLOBAL
-AFRICA
-REGIONAL
-STATE
-COMMUNITY
Transform
• Agriculture
• Manufacturing
• Mining
• Transport
• Health
• Education
• Information & communication
• Service provision
• Natural resources & environment
• Water
Integrate
-Economic
-Social
-Cultural
-Environmental
-Political
D-outcome
• Sustainability
o Economic
o Environmental
• Reduced vulnerability to shocks & disasters
• Improved food security
• Improved health & life expectancy
• Improved well-being & standard of living


KNOWLEDGE SYSTEM
SCIENTIFIC KNOWLEDGE
Science
Technology
Engineering
INDEGINOUS KNOWLEDGE
Local
Traditional
Experiencial
Revealational
Convergence of the knowledge systems promoted by
-Government
-Private
-Universities
-NGOs
-CBOs
INNOVATION
-Radical
-Incremental
-Architectural
-Modular
-Product
-Process
-Grassroots
-Broad based
-Low hanging fruits

Nation- State vs.State Nation

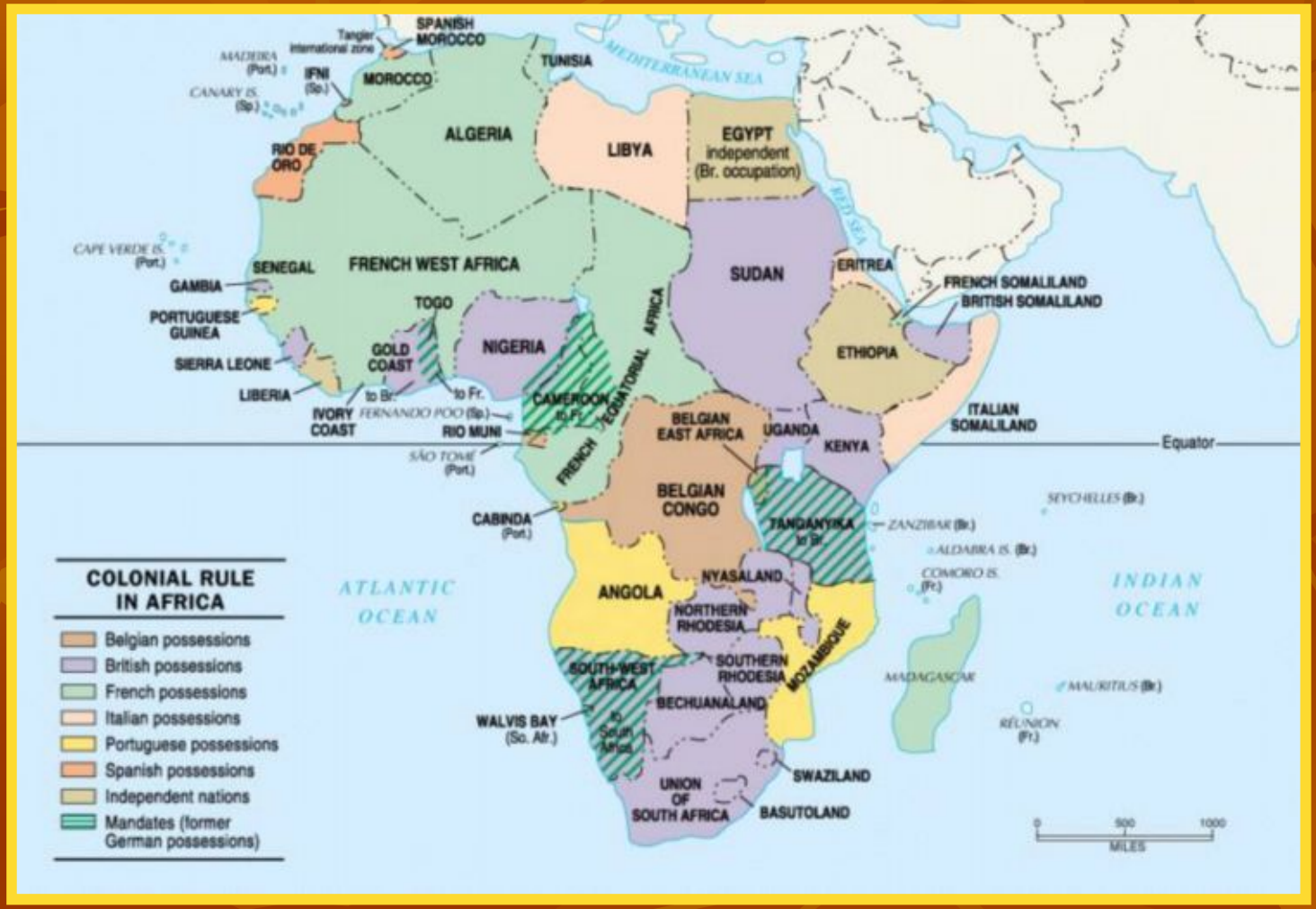
- List understood Germany was a nation
- It was a nation state trying to catch up with Britain which is another nation state
- In Africa we have now many states trying to make nations
- It is not clear how successful this has been
- The African nation should be on the a genda
- Integration is necessary to re-design the development agenda too!

Rich Africa, inhabited with mostly poorer Africans!

Africa before the current state-nation **tearing up…**

Africans traded with the World, China and India.

After the Scramble for Africa this is what Africa looked like…



COLONIAL RULE IN AFRICA

The impact was tremendous…

The Kingdoms shredded

Ethnic differences used to arrange divide and rule!

Re-Design Infrastructure

- Interconnecting Africa to exist as an African integrated entity, there must be a strong effort to create a comprehensive system of infrastructure. Building infrastructure is not only technical. It includes economic and politics too. To date the African effort to interconnect with predictable and well managed infrastructure has remained poor. It needs to change. Africa needs a networked road system. It needs a networked railway system. It needs a networked telecommunication system. It needs to develop a networked infrastructure that interlinks the Africa land, air, and sea making it easier for an African integrated economic system to evolve.

Networked Systems of Innovation

- The networking of industry requires the networking of economics and politics. It is not easy to run an African railway system without networking and coordinating policy where the sharing of the costs and the gains are both just and fair

Re-Designing Africa's Role in Space: the SKA

- The square kilometres array (SKA) radio telescope is now going to be driven in Africa by South Africa. The SKA is expected to be used to explore the spatial universe, the stars, galaxies, the dark matter and astrophysical processes. Knowledge related to unified field theory to understand not just how the universe works the way it does but also why it works will be explored. This research and opportunity has now been won by South Africa's DST successful bidding. Now the real challenge is to get all of Africa behind this SKA exploration on the one hand and for South Africa to be open and welcome primarily other Africans first before inviting others.

Re-Design: Youth Focused Development Agenda

- The youth fall under the following categories
- Unemployed… skilled but jobless
- Unederemployed- skill mismtach
- Unemployable– no skill
- Re-engineered strategies should be applied to address the real needs of youth
- Contexualise the youth needs and asses the talents
- Nurture the talents with hope, encouragement and confidence

Knowledge, Learning, Innovation and Capability

- Diffuse from the bottom up to build wellbeing
- Inclusive
- Sustainale
- Poverty free
- Integrated
- Harmonious
- Ubuntu value anchored Africa

Concluding Remark

- We need not only the words but also to discover the grammar to grasp African entity in its current largely fragmentation-dependence state in order to transform it into the being of an enabled self- sustaining capability building systemic dynamics to re-launch and re-design the African development agenda on a secure pedigree.

Build African Human Capital

- Human capital development is critical to reduce unemployment and youth un-employability. In many African countries training for human capital building is critical. It appears that coordination and linkages amongst the production of the skilled and educated trainee remains a challenge to many African countries. Human capital is one of the critical factors for building the national system of innovation in Africa. Africa needs an education revolution to create a human capital foundation that can sustain a robust system of innovation. It also needs to launch an engineering and design revolutions. The science, technology and engineering revolution can serve as a spring board for re-designing an African development agenda where agriculture, manufacture and services are interlinked in the African national economic space. The goal is to expand the industrial foundation of a strong and integrated African economy.

Build Social Capital

- Africa needs to build social capital which together with human capital provide the necessary conditions to make physical, financial and natural capital to serve the development engine of Africa rather than as it currently happens much of the wealth ends up wasted in off shore banking and other foreign banks and sources. In addition to the technical innovation of converting R & D and knowledge into innovation, Africa needs a social innovation where the collaborative and partnering values of African society grow by combining traditional values that support development with values from the globalizing world that are worth incorporating without defying the logic of building the African networked system of innovation (NSI).

Some Useful Links

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