INTEGRATION OF SCIENCE AND TECHNOLOGY IN NATIONAL AND REGIONAL DEVELOPMENT: ACTIONS AND EXPERIENCES OF UNCST

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Search
Go

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About UNCST

The Uganda National Council for Science and Technology (UNCST) is a Government of Uganda Agency, established by CAP 209, under the Ministry of Finance Planning and Economic Development. The Council is mandated to facilitate and coordinate the development and implementation of policies and strategies for integrating Science and Technology (S&T) into the national development process. More...

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- About us
- Publications
- Projects
- Services
- Announcements
- Policies

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2011 National Science Week | 19th - 23rd September

News Update

- **2011 Primary Schools Pupils Drawing Competition | Winners**
  27 September 2011
- **National Science Photo Competition & Exhibition 2011 | Winners**
  27 September 2011
- **Supporting the Evolution of Sustainable Living Labs and Living Labs Networks in Africa**

Outline

- Introduce the topic
- Integrating science, technology and innovation into national development is a challenge
- BIOEARN, Bio-Innovate, MSI as examples
- Challenges
- Recommendations

Introduction

- Uganda has natural resources, & a high population expected to reach 90 million in 2050;
  - Over 50% of 32 m people below age 15; & over 80% living in rural areas;

East Africa to be world's largest population block by 2050 with est. 711 million people!

-UNFPA, 2010

Introduction…

- Challenge
  - Provide for youthful population
  - Manage natural resources sustainably;
  - Attain competitiveness in global markets

- Aspiration:
  - to transform into middle income country as soon as possible.

Introduction…

- Science, technology & innovation to play a key role in the social and economic transformation

STI

- S&T (I) may refer to-
  - a *dynamic process involving discovery and generation of new knowledge and the application of knowledge to develop new and/or improve goods and services.*

    - S&T is not an end in itself, but a means by which new products & processes are developed and brought to market.

Integrating STI in national dev't is a challenge

- Integrating STI in Uganda's (and the region's) development planning could be looked at from two dimensions:
  - exogenous
  - endogenous

Exogenous dimension

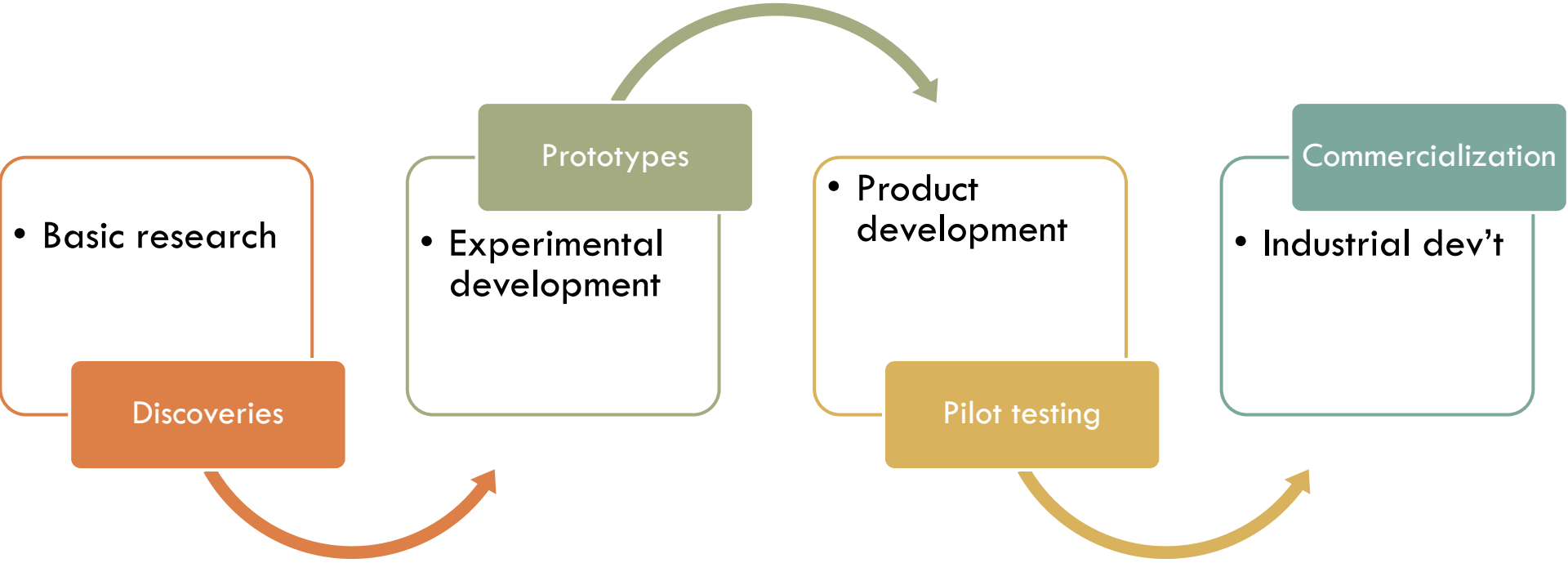
- Before independence, STI was an integral part of central government (e.g. EACSO), but focused primarily on research on cash crops and tropical diseases;

- UNESCO' significant efforts:
  - Establishment of research councils;
  - CASTAFRICA I & II in 1974 and 1987 respectively;

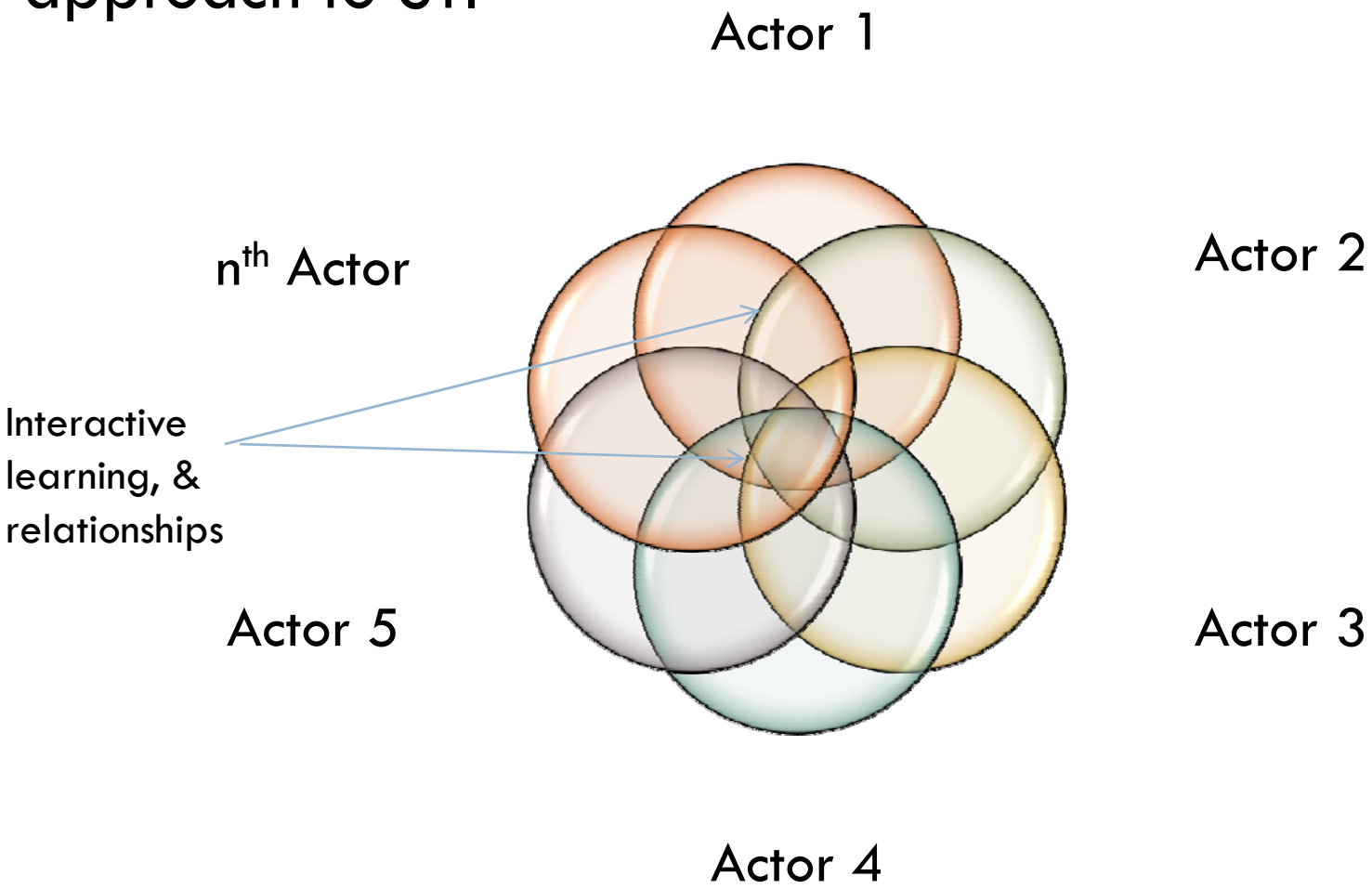
- Lagos Plan of Action of *1980—basis for establishing UNCST;*

- AU's contribution through NEPAD's Africa's S&T CPA, 2005

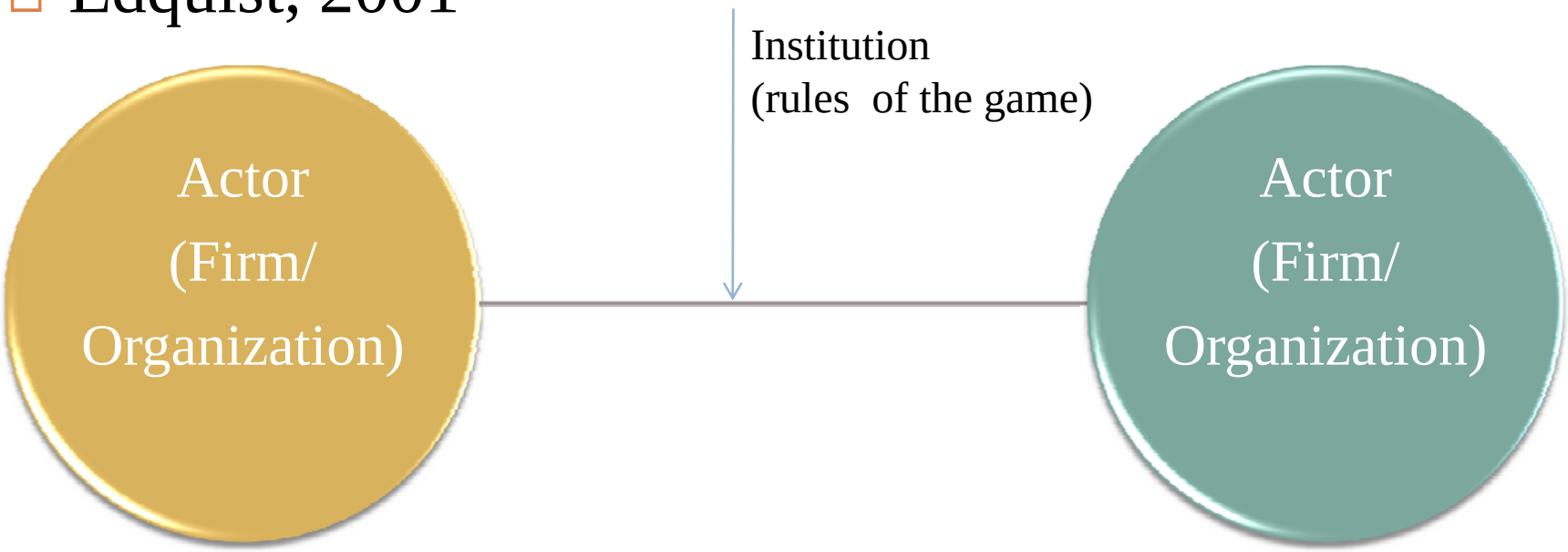
- Earlier efforts shaped by linear view of STI advancement



- But emerging contemporary view prefers a systems approach to STI



- Edquist, 2001



- Interaction & learning are the basic tenets of an innovation system

- Exogenous influences have shaped processes of integrating STI in national development planning, but by themselves were not sufficient.

Endogenous dimension

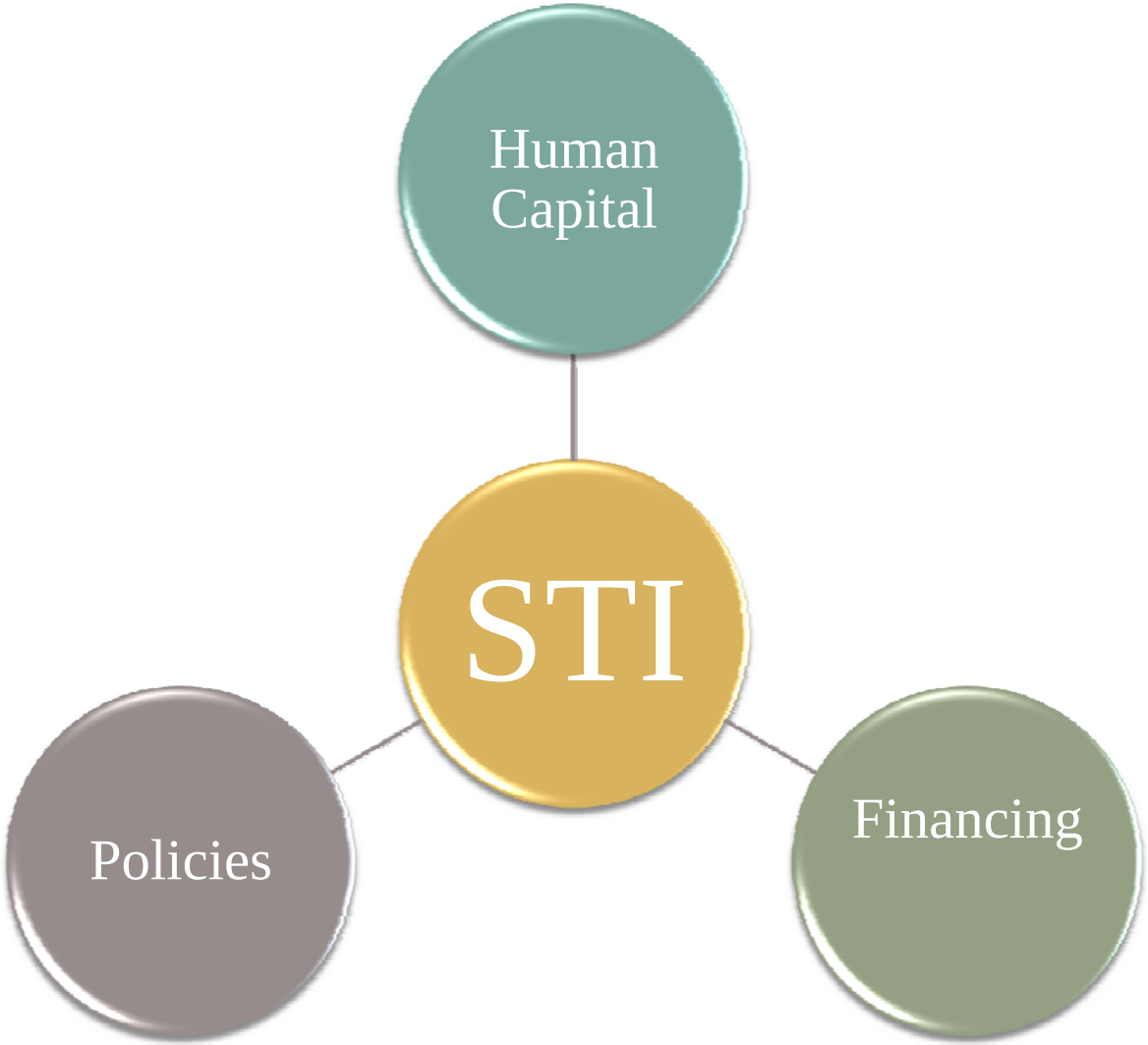
- Integration of STI in development planning started in the 1990s;
  - Specialized R&D orgs created, e.g. NARO, UIRI

- Through Poverty Reduction Strategy Papers (or PEAP I, II, & III in Uganda) but implicitly---no clear mechanism of how to use STI for economic growth.

- But in 2010, STI designated in National Dev't Plan 2010-2015 as a sector to provide institutional and infrastructure support to the production of goods & services.

- However, this should be considered a process, and not an end in itself, & implementation to be in the context of the national system of innovation.

Key elements (pillars) in the system



Our experience with BIOEARN

- UNCST initial host, then IUCEA
- Help EA to use agric, environmental, & industrial biotechs to address local problems & to take advantage of opportunities these techs offer.

- Involved Government (policy component), academia (R&D), private sector (business ideas).

BIO-EARN has trained us and provided us with a platform to collaborate with scientists in the country, in the region and all over the world. It has also assisted us in forging a much needed linkage to local industries and private sector partners.

Dr Suhaila Hashim,
University of Nairobi, Kenya

From BIOEARN to Bio-Innovate

- A competitive funding mechanism for bioscience and product oriented innovations in Eastern Africa;
- Funding Consortia:
  - one of which is Bioscience Innovation Policy Consortium for Eastern Africa (BIPCEA) led by UNCST

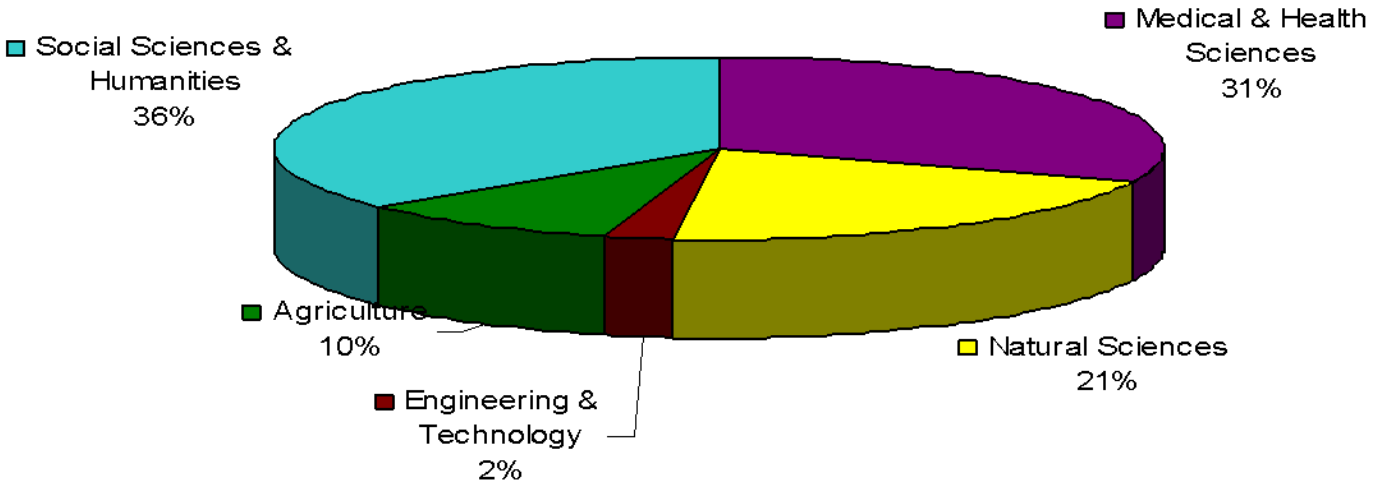
- BIPCEA was launched in Kampala on 29 September 2011 by Hon. Fred Omach, Minister of State for FPED (General Duties)

BIPCEA provides policy support tools to Bio-Innovate projects

- Modern bioscience innovations are promising for EA, e.g.:
  - Improving cultivars for small farming systems
  - Exploring opportunities for value addition & agro-processing
  - Improving waste mgt, and
  - Tapping bio-energy potential
- BIPCEA to support these efforts

- The region could have a competitive edge in developing a bio-economy.

- But equally important is the need to advance research & innovation in the engineering & physical sciences!!



Distribution pattern of research in Uganda in 2008

Our experience with the MSI

- MSI is a USD 33.35 million project over 5 years;
- Co-financed by IDA = USD 30 m; and GoU=USD 3.35 million
- Implemented by UNCST

MSI development objective

- Is "for Ugandan universities and research institutes to produce more and better qualified science and engineering graduates, and higher quality and more relevant research, and for firms to utilize these outputs to improve productivity for the sake of enhancing S&T-led growth".

- MSI was launched by H.E. President Yoweri K Museveni on 23/2/2007

- MSI was:
  - First of its kind in IDA Uganda portfolio;
  - Seen as a way to accelerate Uganda's transformation to middle income economy

Uganda MSI (UNCST)

Component 1: Grants

Window A: Research Grants

Window B: Undergrad Science & Engineering Degree Programs

Window C: Private sector cooperation

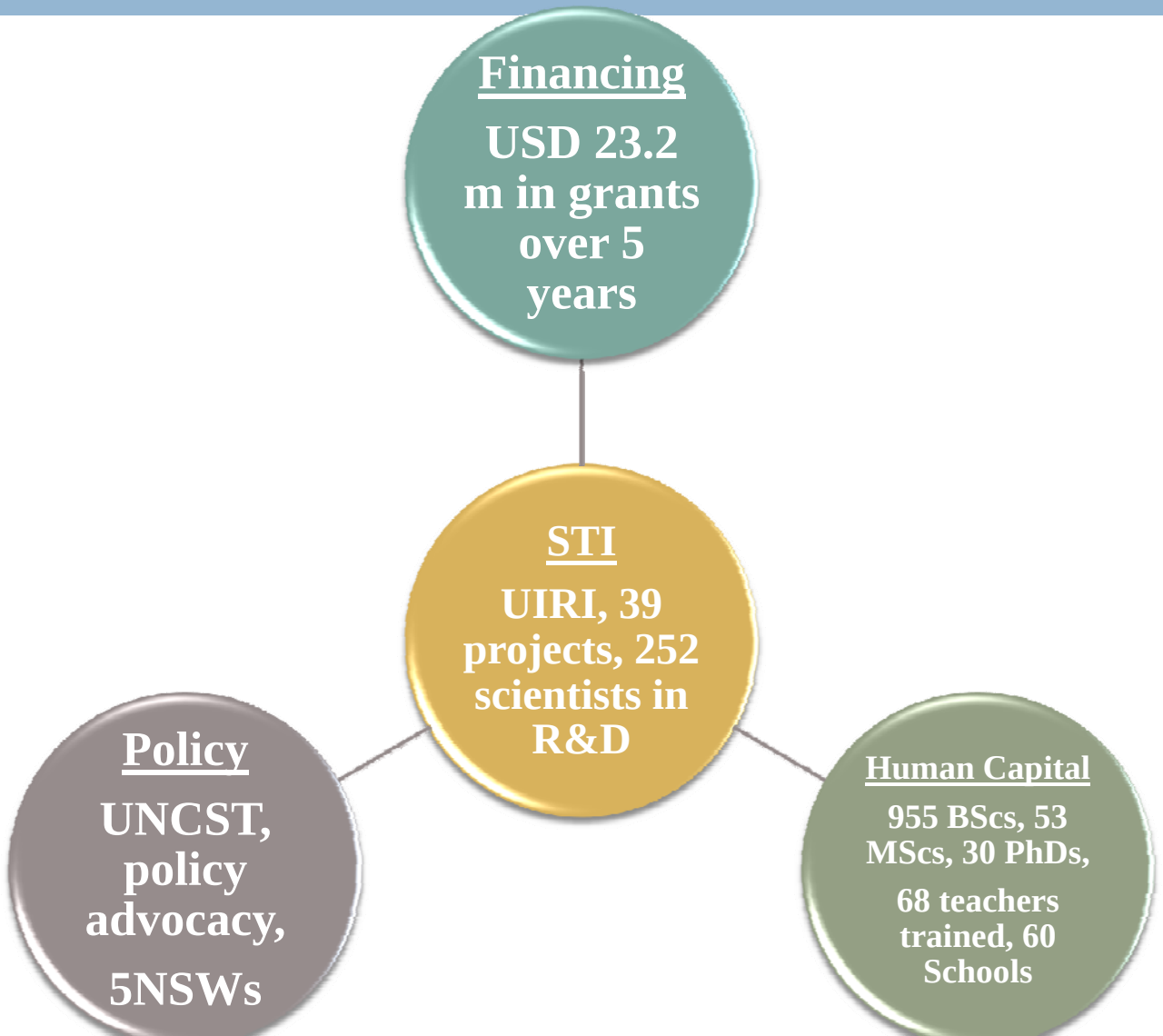
Component 2: Institutional Dev't

Outreach

Policy & M&E

UNCST & UIRI strengthening

MSI outputs


Financing
USD 23.2 m in grants over 5 years
STI
UIRI, 39 projects, 252 scientists in R&D
Policy
UNCST, policy advocacy,
5NSWs
Human Capital
955 BScs, 53 MScs, 30 PhDs,
68 teachers trained, 60 Schools

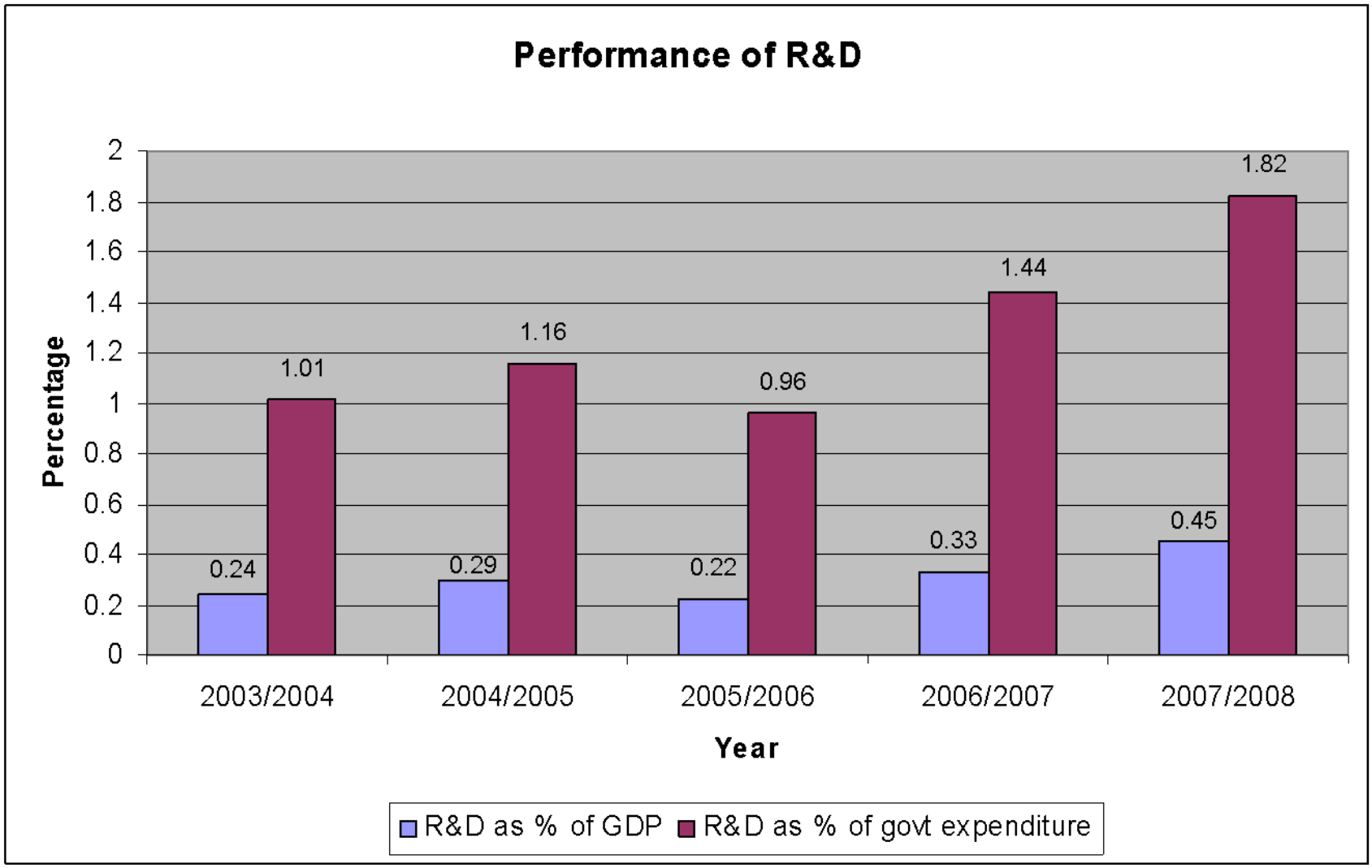
Challenges

- Harnessing political will for STI;
  - *"It is no secret that Africa's history has been marked by a development narrative in which the benefits from science, technology and innovation have been enjoyed by few, instead of being seen as tools for the development of all citizens. Today this is changing and Africa's leaders view science, technology and innovation as critical to human development, global competitiveness and ecological management."*
    - *Calestous Juma, 2007*
  - But this must be translated into real allocations of more resources to STI

- Good aspirations—e.g. Since 1980 with the LPA, invest 1% of GDP on R&D; repeated in 2007 AU summit

- But 30 years later (2011) most countries at <0.5% of GDP on R&D (except South Africa~0.9%.

Uganda: R&D Expenditure



Challenges…

- Ensuring effective management of science, in particular, functional systems at the organizational level:
  - Intellectual property management,
  - procurement planning and financial management systems.

What I recommend

<u>Financing</u>

Dual or multiple streams of financing:

1. Increase core support to universities & research orgs;

2. Have in place a competitive merit based system along the lines of the MSI

What I recommend…

What I recommend…

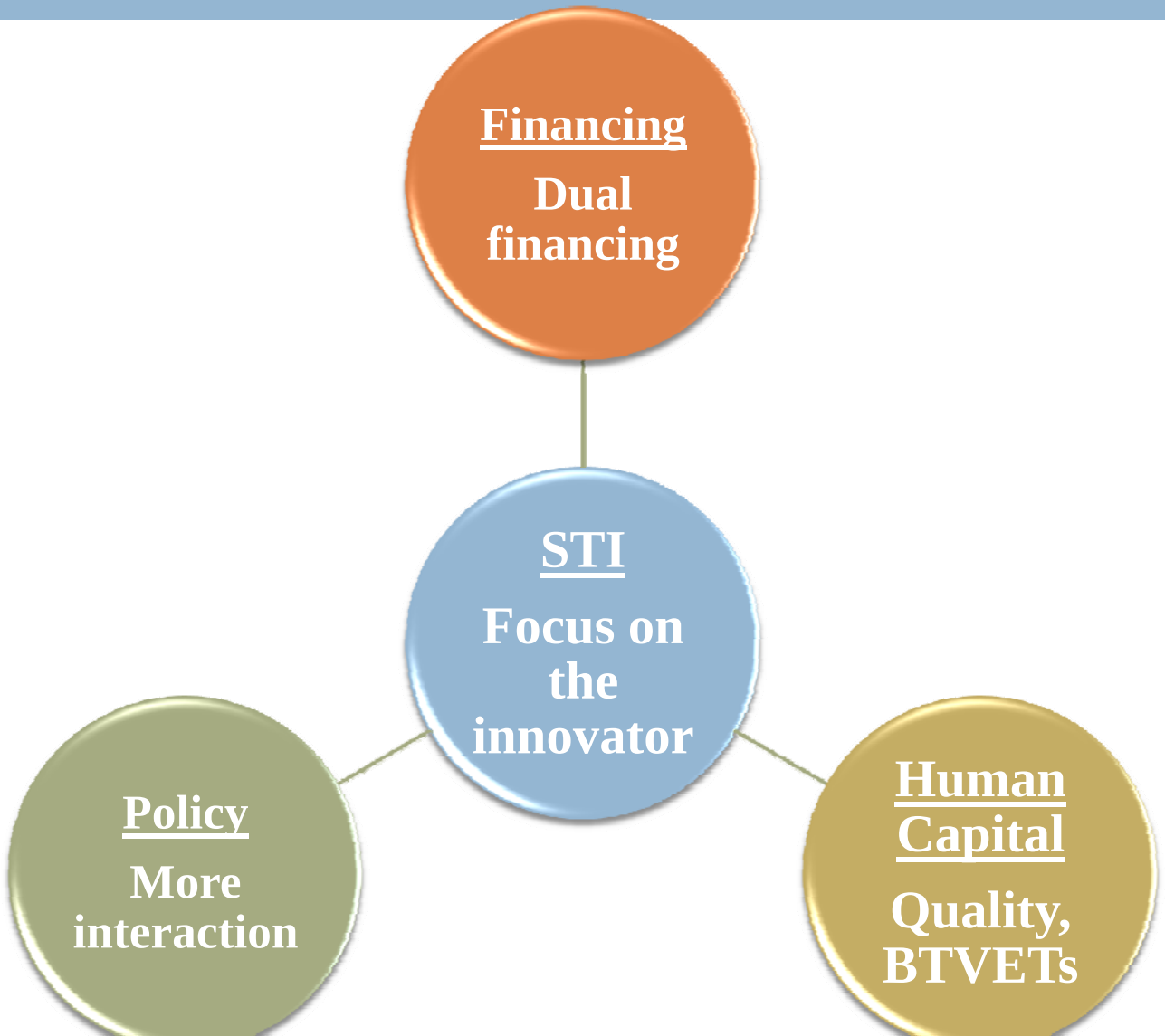
What I recommend…

STI

Focus on the innovator:

i.e. create for him/her enabling conditions for creativity at the workplace, e.g. employment terms, IP services, business incubation, procurement & financial mgt, FTO, etc.

What I recommended:



Conclusion

- The S&T landscape is moving fast forward and becoming one of the most important determinants of the space we occupy in the global market. Uganda and the region can certainly be important players in this 'innovation revolution' by creating conditions that enable its scientists and entrepreneurs to be more productive.


NATIONAL SCIENCE WEEK
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2010 NATIONAL SCIENCE WEEK
SCIENCE WALK & LAUNCH OF 2010 NATIONAL SCIENCE WEEK
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Thank you for listening