Supporting domestic capabilities as a priority for engaging in meaningful STI for ending poverty

Multi-stakeholder forum on STI for the SDGs

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Strategies for scaling up = poverty eradication

What strategies can be used to effectively scale-up technologies and innovations to eradicate poverty?

Background:

- Innovation is a component of (economic) development

- Innovation is disruptive and has distributive consequences

- Structural change is central to economic development (Hausmann and Hidalgo, 2011; Hidalgo et al., 2007)

- (Economic) growth and structural change tend to reduce poverty (Ravallion and Chen, 2003), but the extent depends on how income is distributed (Bourguignon, 2003)

<u>My augment:</u>

Innovation may result in different pathways of inclusive structural change which is a key consideration for designing sustainable strategies for poverty eradication.

Solutions/strategies are often context specific and what works in one context will often have to be adapted in various ways to work in another context (double loop learning).

- Different strategies have been proposed & tested (e.g. IFAD, Oxfam experiences with agro based- rural innovations)

  - *These experiences show that eradicating poverty to a significant level must be part of a longer-term process that can sustain learning & scaling up (and scaling out).*

- My experience with multi-stakeholder collaborations is that sustained learning and scaling up/scaling out depends on building requisite **<u>capabilities/capacities and routines to innovate and induce structural change at the domestic/local level </u>**(case of IREK – next slide)

Buidling domestic capabilities as a key driver to multistakeholder collaboration for SDG-oriented STI deployments

- **Capabilities building is paramount in discussions about STI as a tool for economic and social growth towards inclusive poverty eradication**
  - Both Innovation & structural change need capabilities (Amsden, 2001; Bell and Pavitt, 1993)
  - There is consensus that ending poverty will require building up research & STI capabilities among firms and institutions especially in Africa.

- **Lessons from IREK: a study of technology transfer in renewable electrification <u>AND</u> inclusive structural change in Kenya**
  - How do different processes and structures determine the way in which <u>domestic capabilities and local routines</u> to innovate and induce structural change are created, acquired, accumulated and diffused in low income countries, in order to foster endogenous creativity and entrepreneurship?
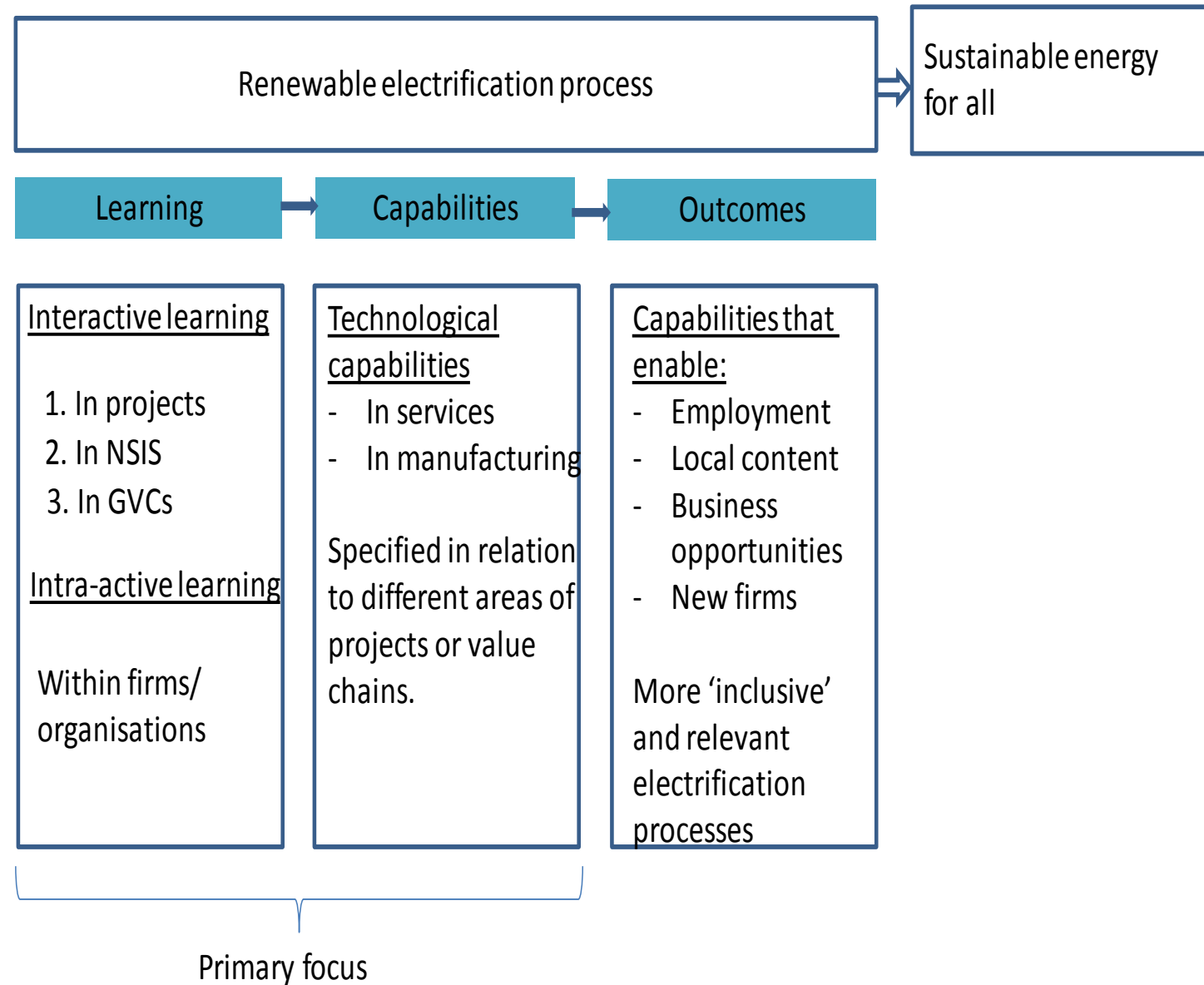
Thinking about domestic capabilities

innovation systems or value chains:

1. What is the nature and extent of technological capabilities?
   - Who has these capabilities?
   - What relevant actors do not have these capabilities?
2. How were these capabilities developed/acquired?
   - What was the role of different types of learning?
   - What were the learning constraints?

Renewable electrification process	→	Sustainable energy for all

Learning	→	Capabilities	→	Outcomes

Interactive learning	Technological capabilities	Capabilities that enable:
1. In projects 2. In NSIS 3. In GVCs Intra-active learning Within firms/ organisations	- In services - In manufacturing Specified in relation to different areas of projects or value chains.	- Employment - Local content - Business opportunities - New firms More 'inclusive' and relevant electrification processes

Primary focus

Lessons for collaboration & pro-poor business model/s

- The issue **isn't so much about appropriate technologies** from S-S or N-S transfer as it is about **how any technology is taken up or diffused.**
- Even the most 'relevant' technologies developed abroad will need to go **through a process of transformation** in order to become **both efficient and inclusive** in the **specific context** (mostly for emerging economies).
  - Building domestic capabilities is key = enhances sustainable and inclusive innovation and structural change (importance of macro/meso systemic environment & local actors and their capability needs)
- **'Small is beautiful';** that you get more domestic capabilities built with small scale projects than large scale (on-grid) projects (important for STI policies)
  - This augments the discussion about SMEs and informal sector – as pro-poor and their potential to promote inclusive structural change.

Recommendation 1: Rethink (STI policy and STI process)

beyond technological innovation concept , firms, growth and wealth creation

- beyond formal firms – e.g. community level innovative activity
- Innovation isn't just about technological products – e.g. spin outs from universities require the right form, field and flows
- Focus shouldn't just be on entrepreneurship but also innovation for SMEs (Micro-, Small and Medium-sized Enterprises)

Rethink STI policy in terms of ….

- Content:
  - building science and technology platforms and promoting collaboration between enterprises and universities (production and use of codified scientific and technical knowledge - **STI-mode**)
  - but STI mode should be combined with upgrading the skills of workers and farmers and supporting the demand for knowledge (experience based Doing, Using and Interacting - **DUI-mode**).
- Systems failure: inability of a system of innovation to support creation, absorption, retention and use; and dissemination of economically useful knowledge through interactive learning or in-house R&D investments
  - Consider policy experimentation: policy learning thro testing different novel alternatives in design of policies that support innovation in very specific contexts – no imitations
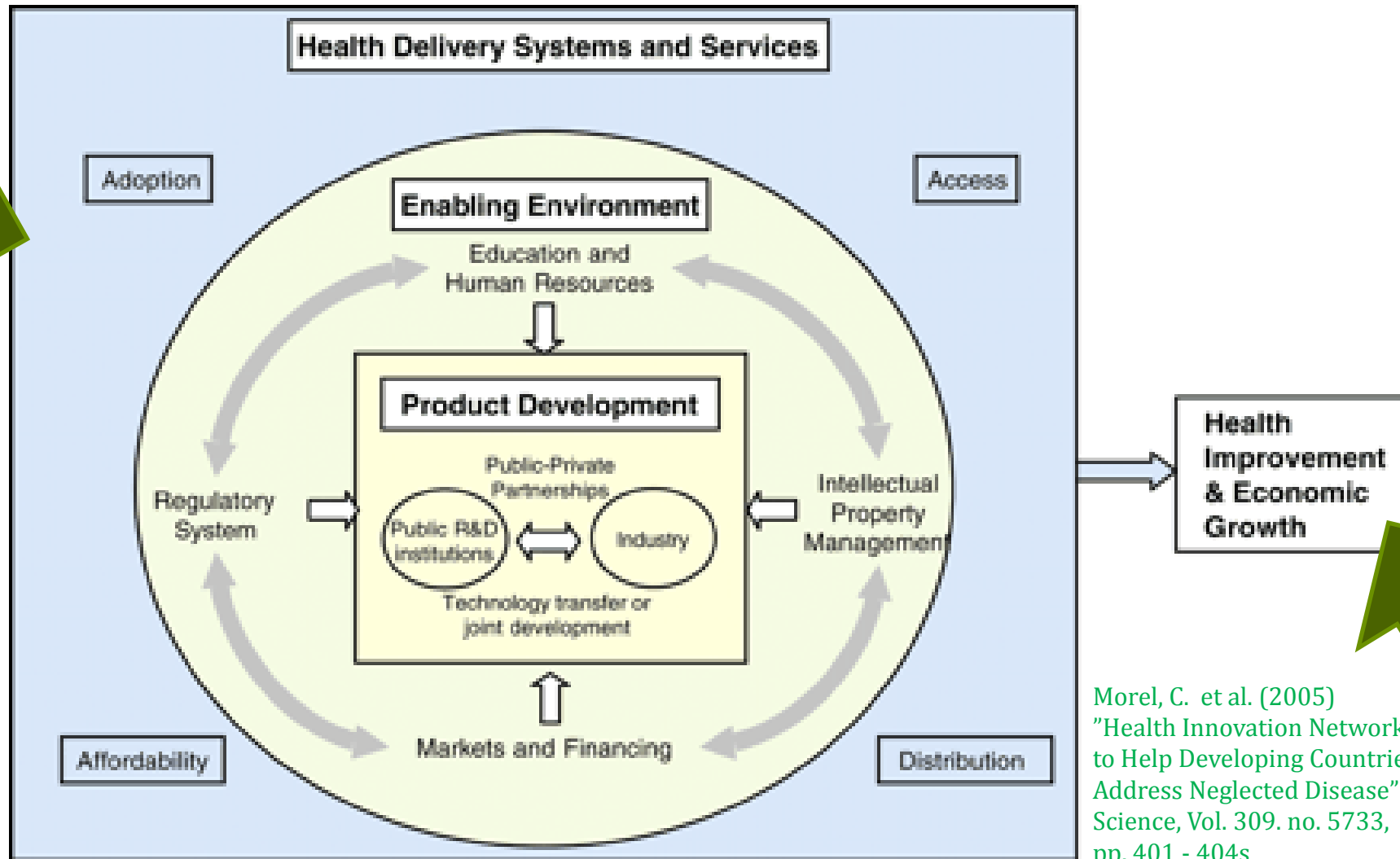
Recommendation 1 cont'd

Rethink innovation process in terms of social innovation

- Since innovation is a social process, innovation and development have learning processes at their core and should focus on inclusion and sustainability issues to ensure effective structural change

- Innovation is a process that needs promoting throughout society

- **Social innovation is about "how we can improve societies' capacities to solve their problems"** (Mulgan et al, 2007: 5)

Social innovation is defined as:

- - new organisational and networking approaches to enhance the operation of firms, clusters, communities, sectors and nations

- - **The importance of ensuring innovation has a social focus** (i.e. a focus on inclusion, equity, equality and social justice)

The 'social' within innovation systems thinking in heath sector

Morel, C. et al. (2005) "Health Innovation Networks to Help Developing Countries Address Neglected Disease" Science, Vol. 309. no. 5733, pp. 401 - 404s

Recommendation 2: Strategic capacity/competence building

a) innovation focused education curriculum

- Build capacity of young people – focusing more on changing their mind sets (institutions & practices) etc.
  - AfricaLics as a network is actually trying to do this (albeit in a small way) by targeting young post graduates (PhD and Masters) and their supervisors trying to instil innovation thinking and skills in their respective areas of research so long as it focuses on Innovation & Development.
- Introduce innovation studies in our higher institutions of learning (to complement STEM).
  - AfricaLics has developed a Masters Module on innovation & development for possible uptake by African Universities (Module is free for download and Academic institutions can adopt elements of this module based on their context.

b) Invest and promote domestic capabilities

Recommendation 3: Call for research to unpack the innovation, structural change and inclusion nexus

- **Still unclear/very little empirical evidence:**
  - Which technology, in which context leads to learning, technology upgrading and further structural change
  - How inclusion and inequalities influence successive phases of innovation & structural change
  - This calls for thinking about related metrics – indicators for measuring & monitoring impact
- Draw insights from a framework for undertaking this nexus being developed by researchers at IDS & SPRU – University of Sussex. There is emerging evidence that:
  - there is dynamic relation between innovation, structural change and inclusion
  - Variables that characterise innovation (process and system), influence the relation between innovation, structural change and inclusion

Recommendation 4: Localised STI collaborations or initiatives

e.g. Centres of Excellence that are innovation oriented & African led (led by African Scientists, policy makers have a stake – but open up to internal and external collaborations).

- Invest in research excellence and leadership in research & Innovation

- Address brain drain and enhance brain circulation
  - This will help in mobilizing resources (within Africa and without) - expertise, policy support, capabilities and competence building with element of intra & inter - learning etc.

- E.g. Coalition for African Research and Innovation (CARI), spearheaded by African Academy of Sciences (focusing on health)

- Aim to "shift the centre of gravity" of R&I to Africa