

Assessing national innovation environments

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Outline

- Attempt to define innovation
- Assessing innovation policy comprehensiveness
- Assessing innovation framework
- Final thoughts and way forward



Defining innovation

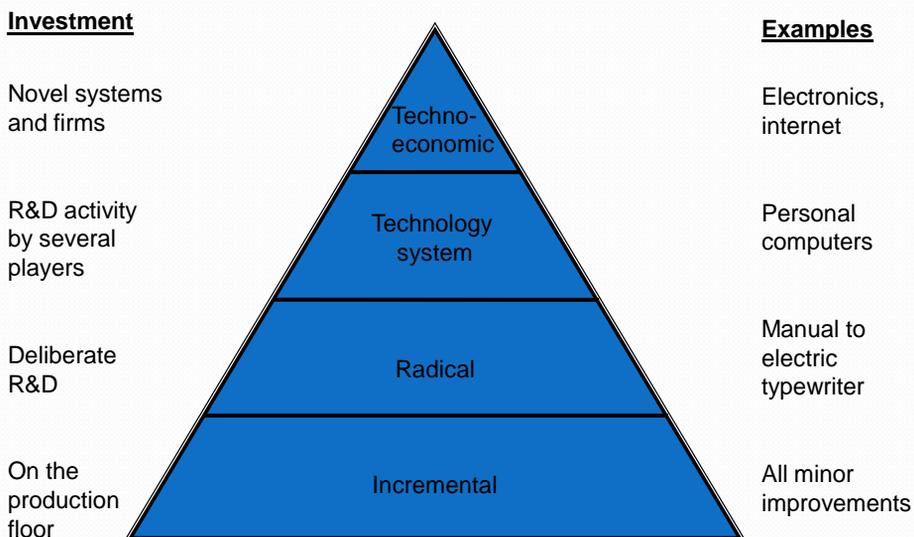
- successful application of new ideas, improvements to a process, product or service, creation of a new use or device or dimension of performance or an advance that solves a challenge or creates a new market etc.



Defining innovation

- **Incremental innovations** slight improvements.
- **Radical innovations** - these are quantum leaps in the performance.
- **Changes in technology systems** – the result of several cumulative radical innovations
- **Changes in techno-economic paradigms** – the result of several cumulative changes in technology systems

Most common or important innovation



Encourage innovation at all levels

- Incremental : almost all firms and institutions
- Radical: R&D investing firms and centres
- Technology systems: Mostly leading technology firms and centres (e.g. NASA)
- Techno-economic paradigm: Leading firms and centres

Why assess the innovation environment?

- Evidence of a link between innovation performance and innovation framework conditions.
- An active innovation policy drives innovation performance (i.e. innovation policy is key in ensuring new innovations are developed and technology diffused throughout the economy).
- Political commitment to drive innovation is often enshrined in the policy – key in sustaining interest over a long time.
- Innovation policy environment assessment complements innovation performance research
- The national context can help explain difference in institutional set-ups.

Towards an innovation based economy

Competition for
Products and
Markets

Competition for
Resources and
Competencies

Competition for
Innovation and
Talent

**Factors of
production**

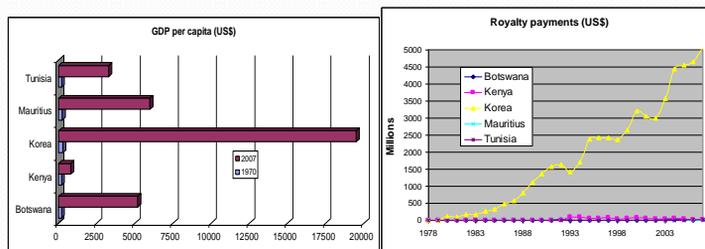
**Valuable
resources**

**Core source of
competitive
advantages**

- Resource-driven to knowledge and innovation-driven economy

Adapted from Bartlett and Ghoshal (2002) 'Building Competitive Advantage Through People', MIT Sloan Management Review, Winter

Innovation key to socio-economic development



The differences partly lie in differences in skills, resources, commitment, leadership etc- often highlighted in policies.

How fertile is the environment for innovation?

- What are the key determinants for innovation?
 - Indicators - performance
- What kind of measures and mechanisms are needed to promote innovation?
 - Policy areas – environment/framework
- How can one create an environment in which innovation flourishes?
 - The right policy mix and support measures.

Assessing the climate: Policy comprehensiveness

- ✓ The general innovation policy
- ✓ Promotion of innovation
- ✓ Innovation in the education system
- ✓ Financing innovation
- ✓ Regulatory framework
- ✓ Counseling and Information
- ✓ Target group innovation policies
- ✓ Policy research

The general policy

Are there policy statements on the importance of innovation in the national development plan?
Are policy objectives for innovation embedded in other policy frameworks? In entrepreneurship policy? In research policy? In industrial policy?
Have specific targets been set for increasing spin-offs, the level of innovative SMEs or the number of new innovative firms?
Is there a central Government budget allocation for innovation policy?
Is there an agency or administrative unit within central Government with primary responsibility for innovation?
Does the government have mechanisms to assess and track measures of 'innovative climate' and 'innovative culture'?
Does the Government track and report on business dynamics (i.e., the entry, exit, survival and growth rates of innovative enterprises)?
Does the Government support and/or publish research on and about its innovative entrepreneurs?

Promotion of innovation

Is there a stated policy objective to increase broad-based awareness of innovation and innovation systems?
Does the Government sponsor events that profile innovative start-ups?
Does the Government alone, or in partnership with private sector organizations, recognize innovators through national, high-profile award programmes?
Does the Government engage with the mass media in the promotion of innovation?
Is a portion of the central Government budget allocated for innovation promotion activities?
Does the Government sponsor events that profile innovation systems?

Innovation in the education system

Is there a policy objective to integrate innovation activities into all levels of the education system?
Has there been a study (stocktaking) of the extent to which innovation is included in education at school level?
Is there public funding support to support student innovative ventures?
Are innovation-oriented courses widely offered to college and university students?
Are private actors involved in innovation activities in the school system?
Is there a national budget allocation for development and implementation of innovation education initiatives and programmes?

Financing innovation

Is there a concrete policy objective to increase financing available to new and early-stage innovative companies?
Is there a Government-supported micro-financing to enable more people to start new innovative businesses?
Do micro-loan exist for under-represented groups (e.g., women; ethnic minorities; young people)?
Does the Government support the development of angel networks or databases to bridge gaps between entrepreneurs and informal investors?
Does the Government stimulate the availability of venture capital funds for early-stage, high-tech and regional firms?
Has the Government relaxed regulations for 2nd tier stock markets?

Counseling and Information

Is there a stated policy objective to increase the level of support for nascent, new and early-stage innovative entrepreneurs?
Is there a Government-sponsored web portal that provides start-up and other information to nascent and new innovative entrepreneurs?
Does the Government facilitate the development of mentor programmes for new innovative entrepreneurs and growth firms?
Is there a national incubator strategy with Government funding to subsidise the initial funding of incubators in key regions?
Does the Government provide support to encourage spin-off companies from university and publicly funded R&D?
Are performance standards in place for service providers for innovations?

Target group policies

Is there a stated policy objective to increase the innovative activity levels of certain segments of the population?
Has the Government examined the specific barriers and challenges faced by different demographic groups, including their take-up rate of existing business support services and programmes?
Does the Government target initiatives for: Female, Youth, Minorities, Expatriates/Immigrants & Unemployed innovative entrepreneurs
To what extent are there policy initiatives in favour of innovative entrepreneurs and spin-offs from Government-funded and university R&D?

Research policies

Does the Government have special support for policy-oriented research?
Has the Government an advisory group of researchers to discuss development of measures in Innovation Policy
Does the Government often relate to research results in documents concerning Innovation Policy?
Are there regular meetings between researchers and the Government to discuss and present recent research knowledge in the area of innovation?
Is there a specific budget item for research programmes in Innovation Policy
Has the Government created a number of centres of excellence in the area of innovation research?
Does the Government support the development of research activities to increase the number of innovations

Remarks

- A tool to inform policy making,
- Self-assessment of policy environment
- It is neither exhaustive nor a blue print
- Based on work in Europe

Source: Lundström, Almerud and Stevenson (2008)

2nd Approach: Innovation framework conditions

Public research	Academia-industry cooperation	Innovation finance	Market conditions
Public investment in R&D R&D as % GDP Researchers per 10,000	Cooperation in R&D Industry-academia agreements Industry funding of uni. R&D Business assessment of R&D cooperation	R&D subsidies and tax incentives Direct R&D subsidies Tax R&D incentives	Access to technology Industry assessment of: Technology diffusions Research and training IPR protection
Relevancy of research Papers cited in patents Articles in industry periodicals	Commercialization of research Researcher start-ups Licensing/rights transfer to industry	Access to venture capital Seed, start-up, expansion	Competition policy Entry barriers Price control Preventing unfair practices
Quality of research Articles in international journals Business assessment of public research	Highly educated workers Scientists per workforce % knowledge workers in industry		Competencies of users and suppliers Sophisticated buyers Competitiveness of local suppliers Government procurement

Sources, OECD, 2004; 2009



Major policy challenges

- Internationalization of R&D
- The growth of complex global production networks
- Increasing importance of open innovation ecosystems
- The increasing importance of the “public”



Adapting assessment tools

- Relevancy to Africa
 - Link of policy area to innovation performance
 - Do the institutions exist (e.g. stock markets)?
 - Cost-benefits or can they be implemented within budget and local skills
- Comparison
 - Across countries
 - Across regions
 - Globally



Which measures are important for Africa?

- Human capital
- Resources (finance, R&D and technology)
- Promotion or government support
- Academia-industry-government relations
- Markets??



Conclusion

- ❖ *We are in the process of testing the assessment tools*