



SCIENTIFIC AND INDUSTRIAL STRATEGY FOR THE DEVELOPMENT OF ANGOLAN ECONOMY

Eurico Josué Ngunga, Ph.D

**Agostinho Neto University
ANGOLA**

PLAN OF PRESENTATION



1. Introduction - Objective of the study;
2. Methodology;
3. Theoretical Framework;
4. General Situation of Angola;
5. Findings and recommendations

Question

Which strategies should Angola use to build up capacity and infrastructure to boost the economy, of Angola?



1- Introduction

- This work focuses:
 - on problems of Angola such as the scientific and industrial strategies for the development of a national economy.
 - Secondly, it relies on belief that higher education plays a key role in promoting economic growth, and diminishing the plethora of problems, and it can help to eradicate extreme poverty in Angola.
 - Finally, it concludes that higher education can produce significant benefits as a whole, improving technological catch-up and, in doing so, may help to maximize Angola's potential to achieve more rapid economic growth given current constraints

The discussion comes from an interview undertaken with seven Angolan scholars and government workers and a survey undertaken in some institutions.



2. Methodology

- Several research techniques were combined:
 - In-depth interviews with Senior Officers from the Ministry of Science and Technology and Rectors;
 - An interdisciplinary approach through a rich body of literature in Higher Education, R&D and National Innovation System, including approaches found in economic, social sciences and humanities;
 - Statistics from Angolan Government, private and public institutions and other sources such as UNESCO, World Bank, African Development Bank, UNCTAD, UNDP, SADEC and OECD.

3 – Theoretical Framework

- Universities – important role in any society.
- Universities – strategic tool for socio-economic and sustainable development through their three missions:
 - Education,
 - Research
 - Academic entrepreneurship – capitalize the knowledge of any society.

Theoretical Framework



- **Technological development and Economic Growth**

- Joseph Schumpeter (1985), linking innovation and economic growth, defining innovation as the introduction of a **new product with distinct quality**;
- Shapes institutions and modern societies; **Creative Destruction** (NELSON, 2005).

- **Innovations Systems**

- National, Regional, Sectoral and Local Innovation Systems (FREEMAN, 2008); (ETZKOWITZ, 2000).
- LUNDVALL, B.-A. *Putting África First*: The making of African Innovation Systems, 2003;
- CARLSSON, 2005 – Innovation Systems

The so called DUI



- *Learning by **D**oing* (ARROW, 1962);
- *Learning by **U**sing* (ROSEMBERG, 1982) and;
- *Learning by **I**nteraction* (LUNDEVALL, 1988).
- *Learning by **S**olving Problems* (VIOTTI, 2002)
 - Learning – absorption of innovations produced elsewhere, - Generation of improvements in the vicinity of acquired knowledge or techniques.
 - Learning – lever towards obtaining knowledge (even importing knowledge), because in turn it will likely foster a strong relationship between actors of the NIS.
 - materialized on institutions – firms, R&D institutes, universities or government agencies.



4.0 – General Situation – Economic situation - Indicators

- Worldwide, one of the highest economic growth rates from 2003 to 2008:
 - Inflation rate was 105.5% in 2002 (BANCO BIC 2014; MINFIN, 2015).
- Dependency on Oil sector.
 - Represents about 50% of GDP.
- Despite the gradual growth of non-oil economy
 - The majority of population survive with subsistence agriculture
 - Informal economy
- Striving to diversify and develop other sectors: agriculture, fisheries, forestry, industry and services (MINFIN, 2015).



5- Findings and Recommendations

- Even though the Angolan government is producing a reasonable number of graduates, some findings say that:
 - It is not producing a large number of graduates with Science and Technology degrees. As a result, the picture of Angolan R&D is quite weak because
 - Huge lack of quality skills and expertise in research centers, and in higher education institutions such as universities, institutes and faculties.
 - Second, the Angolan firms (industries, enterprises as a whole) are seen here as a set of professional financial organizations. But many of them suffer from a large deficit of expertise, hampering the innovative (process and product) activity in order to boost and strengthen the national economy. This makes it difficult to grow firms beyond a steady.
 - Third, the Angolan government is striving to help the majority of these actors and/or institutions functioning somewhat in a connected fashion.

- Today, the reality forces governments to strengthen the institutions to tackle the global competitiveness, which is increasingly fierce. Thus, industry is no exception.
- The Angolan industry is not deeply engaged in the designs of scientific and technological development. Eventhough government is likely working towards an engagement of some IHEs.

It is known that from this symbiosis arises innovations that will promote the strengthening of them in the competitive and economic plan.



- There is an inherent challenge in how complex and complicated matters of science and technology be presented in concrete terms for the benefit of policy-makers & industries
 - Especially challenging in fields where the natures of research is highly abstract.
- There are gaps and weaknesses in handling technologies, due to the weak capacity of professionals to effectively and efficiently use the technical equipment purchased.



- To build up a strong economy, the actors (sectors) must systematically focus in many areas such as:
 - The effectively addressing the eradication of tropical diseases which plague Angola.
 - Clarifying oversimplified policies, thereby permitting the state to address the:
 - Solid investment in R&D initiatives,
 - programs of knowledge and technological transfer
 - A technical training plan in the short, medium and long-term, as part of an Institutional Development Project - *workshops for existing workers to beef up their skills;*

- Large investments in physical infrastructure; More support to help bring about more effective partnerships between national and international universities and firms;
- Increase Public research institutes.
- Decrease dependence on imported technology to below 50% by 2035
- Increase manufacturing and innovation by 2035
- Provision of sufficient connectivity in science and technological development through – Government, Universities, Researchers, SMEs, Industries and Farms;

Priority sectors: energy, environment, agriculture, manufacturing, services, urban, health, security/defense.

Priority technologies: biotech with health and agricultural applications, IT.



THANK YOU!