Industry and Academia Relations in Developing Economies

The Egypt-Japan University of Science and Technology Experience:
Industry Perspective
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Background and Foundation
EJUST: A hub between 3 Continents
E-JUST is first University in Partnership between 2 Governments

- E-JUST is a Special Status, Government supported University
- Established according to the Bilateral Agreement signed between Egypt and Japan, and Ratified by Presidential Decree 149 of 2009.
- E-JUST’s governance is based on Japanese best practices in Education, Research, Science, and Technology.
- E-JUST aims at financial sustainability through engagement of various stakeholders
E-JUST Stakeholders

• Egyptian Government
• Japanese Government: JICA, MEXT, and Others
• Japanese Consortium of Supporting Universities [JSUC] 12 Leading Universities
• Civil Society
  – Egyptian and Japanese Industry
  – Egyptian and Japanese Individuals and Organizations
  – MENA Governments and regional organizations
Postulates [1]

• Economic growth is mainly driven by the ability of countries to harness the power of science and technology through innovation.

• Growing the economy implies addressing the main factors that affect the competitiveness of industry in the context of the various phases of economic development.

• Innovation is more likely to come from SME’s rather than large corporations.

• Innovation grows out of rivalry, pressure, and challenges.
Postulates [2]

• Economically viable *national* projects are crucial in fostering innovations through cooperation between Academia and Industry in developing economies. [*Crucial role of the Higher councils of Science and Technology*]

• Government policies need to provide *incentives* for business funding of academic research

• Government funds are essential to bridge the gap between proof of concept and early stage research financing (*Bridging the “Valley of Death”*)
Postulates [3]

- Research grants are attractive to industry because they do not dissolve equity.
- Grants for early stage can be used to leverage commercial funds.
- The motivations for industry and academia to conduct research are quite different: Common grounds must be endorsed.
Postulates [4]

• IPR issues related to Joint inventions must be well addressed: Disclosure of proprietary knowledge is an industry concern, but essential in academia.

• Legal and legislative issues can be a serious obstacle in Academia-Business dynamics.

• Venture Capital in most developing economies is still a myth...
Industry’s Contribution to Research

Facts and Figures
GERD Sources of Research Funding

Japan, USA, Israel, Turkey, Egypt

- Outsourcing%
- Govt.%
- Business & Ind.%

Japan – Arab Economic Forum
Industry’s Contribution to Academic Research
Industry Contribution to Academic Research

The 2nd JAEF 2010

Japan – Arab Economic Forum

Outsource
Univ. funds
Foundations
Business
Public Funds
Grants

Germany
Finland
Sweden
UK
USA
Industry Contribution to Academic Research

Percentage of Higher Education R&D financed by industry

Robert J.W. Tijssen  Center for Science and Technology Studies (CWTS)Leiden University, The Netherlands IREG 5 Conference, Berlin, 6-8 October 2010

Japan – Arab Economic Forum

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Japan – Arab Economic Forum
Industry- Academia Relation

Simple Bilateral Relation
Classic Paradigm

- Consultations: Mainly one-way
Industry-Academia Relations

The Extended Paradigm
Who are the Stakeholders?

- Government [*Instigator and Catalyst*]
- Industry [*Principal delivery tool*]
- Academia/ Research Institutes [*Core Driver*]
- Society [*for sustainability: Ultimate Beneficiary*]
Generic Classification of Industry

Is Industry Homogeneous?
Generic Classification of Industry [Porter]

- Cost Leaders
- Differentiated
- Focused (niche markets)
- Focused cost leader
- Differentiated cost leader
The Bigger Picture

Stages of Economic Development
The Divide

Industries in Factor Based Economy

Industries in Growth Based Economy

Industries in Innovation Led Economy

Industries in Wealth Based Economy

Most Industry is Here

Academia Addresses needs of this sector

TIME

Distribution Density

VALUE ADDED
Transitioning

Growth, Innovation, Competitiveness and Sustainability
Industry Transitions

Transition from 2 to 3 Thru Supply Chain
Industry Transitions Lead To Economic Growth

- Factor based economy
- Growth led Economy
- Knowledge based economy
Classical Research Paradigm

- Linear model of Research
New paradigm

- Iterative Model

Adapted from Charles W. Wessner: Converting Res. Into Innovation & growth
TIMES Proposed New Ranking System

Economic activity/Innovation
- Research income from industry (scaled)

Research indicators
- Academic papers (scaled)
- Citation impact (normalised)
- Research income (scaled)
- Research income from public sources/industry

Institutional diversity
- Ratio of international to domestic students
- Ratio of international to domestic staff

Institutional indicators
- Undergraduate entrants (scaled)
- PhDs/undergraduate degrees awarded
- PhDs awarded (scaled)
- Reputation survey (teaching)
- Institutional income (scaled)

Final weightings will be determined after consultation

Source: Phil Baty Editor, Times Higher Education World University Rankings
A Business Model from Egypt: E-JUST

Organization Structure

Dealing with Society: The E-JUST Foundation
Dealing with Civil Society

The 2nd JAEF 2010

E-JUST University

E-JUST Foundation

Board of Trustees

Egyptian Industry

Japanese Industry

Businesses

Individuals

Civil Society

Arab/MENA Governments

MOHE MOIC

Japanese Government
JICA, MEXT, MOFA, ...

Japanese Universities
JSUC

E-JUST University Management

VP-Int'l Relations
Gen Secretary

E-JUST Foundation Board

A professional management team will run the daily operations of the E-JUST University

A professional management team will run the daily operations of the E-JUST Foundation

PPP

Council of patrons
Captive Corporations
Service Entities

www.e-just.edu.eg
Rationale for Establishing E-JUST Foundation

• Established as an NGO – Foundation under Egyptian law to serve E-JUST activities
• Not-for-profit organization accountable to the BOT
• Civil Society contributions will not be channeled to government
• Flexibility in pursuing financial and sustainable activities to the benefit of E-JUST
• Observes rules of public funds, is accountable, transparent, and secure
E-JUST Foundation Mandate [1]

- Establish captive corporations and other business entities serving EJUST, and engage in activities that would generate suitable revenues for the University.
- Establish and support Science Parks and Technology Incubators to the benefit of E-JUST faculty, researchers and staff with active participation of Industry and businesses.
- Receiving funds, gifts, donations, and other contributions made by benefactors and various stakeholders, and establish and manage these funds.
- Receive and manage trust funds and endowment funds.
- Own, supervise and manage service entities such as sports and recreation centers, student housing, commercial centers, etc...
E-JUST Foundation Mandate [2]

• Sponsor and support events such as conventions, exhibitions, performances and similar activities for the benefit of E-JUST.
• Perform and deliver general training programs through E-JUST to the benefit of society.
• Encourage cross-cultural exchanges between Egypt and Japan
• Publish documents, newsletters, and other printed or electronic documents to support its activities.
• Form strategic alliances with similar entities worldwide that serve E-JUST.
Fostering Industry-Academia Relationships

Suggestions
Role of Government [1]

- Identify research priority areas as *Societal needs*
- Institutionalize Funding programs for research
- Grants for early phase/proof of concept finance of joint SME and Academia
- Increase spending on basic research: Universities with strong Basic research are more likely to cooperate successfully with industry
Role of Government [2]

• Stimulate domestic markets as means of increasing rivalry / competitiveness
• Government incentives: tax breaks, grants, early stage funding
• Strengthen factors : Human resources, infrastructure, capital, trade and business associations...
• Create, Adopt, and Enforce Standards
Industry [1]

• Industry should defragment:
  – Encourage Clustering
  – Lobby for systematic zone planning as Growth Poles

• Encourage SME’s to build capacities:
  – Capital Equipment funding
  – Tax incentives,
  – HR development,
  – Forgiving bankruptcy legislations

• Support the establishment of Standards Dissemination Bodies
Industry [2]

- **Invest in Human Resources: Profit from Government sponsored training programs**
- **Form strategic alliances with powerful foreign partners**
- **Active involvement in academia governance [Advisory boards etc...]**
- **Support the establishment of Standards Dissemination Bodies**
- **Participate in Training programs of University students**
Facilitate creation of spinoff Companies and allow academics to have equity positions [reduce brain drain]

Settle IPR issues early: Include University by-laws emulating [Bayh Dole Act] until suitable laws are passed

Establish Universities entities with flexible Legal Status to address issues with civil society [University Foundations]

Understand Industry development phases and their varying needs

Avoid getting trapped in problems of fragmented industries
Academia [2]

- Encourage clustering by hosting Industry events
- Act as a hub to local Tech-park,
- Adapt to emerging paradigms of University ranking
- Look into PBL and Iterative research paradigms
- Establish special external relations administration
- Consider having a TLO to facilitate and foster Technology transfer and coordinate with other institutions, and coordinate with similar offices locally and internationally [TLO]
- Consider University’s social responsibilities
- Invest in Alumni: They support their schools!
We will contact you soon for collaboration with E-JUST foundation

www.ejust.edu.eg

Amir Wassef