Systems Thinking and Higher Education: Innovation Ecosystem Assessment and Application in the Philippines

Derick Brinkerhoff
Peter Joyce

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Systems thinking

- Adaptation
- Feedback
- Holistic
- Sustainability
- Uncertainty
- Learning
- Unpredictability
- Emergence
Capacity development and systems

- Degree of Difficulty & Complexity
- Time Required
- Magnitude of Change
- Resources
- Skills & Knowledge
- Organization
- Politics and Power
- New Incentives & Behaviors
Higher education as a CAS

Functions of higher education:

- Production of human capital
- Production of knowledge
- Production of innovation
- Contribution to sustainable socio-economic development
RTI Innovation Ecosystem Assessment

• Map and score innovation ecosystems and locate higher education within

• Key informant interviews and surveys to identify areas of strength and weakness and dynamic relationships among various parts of the system

• Used as a diagnostic and design tool for higher education capacity building programs
RTI Innovation Ecosystem Assessment
## Innovation Ecosystem Scorecard

<table>
<thead>
<tr>
<th>Factor</th>
<th>Supply</th>
<th>Demand</th>
<th>Enabling Environment</th>
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</thead>
<tbody>
<tr>
<td>Education and Human Capital Development</td>
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<tr>
<td>Research and Knowledge Creation</td>
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<tr>
<td>Transfer of Know-How between Universities and Industries</td>
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<tr>
<td>Startup and Spinoff Companies</td>
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<td>Knowledge Sharing, Trust, Social Capital</td>
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</tbody>
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**Key**

0 1 2 3 4

Poor------------------------------------------>Excellent
The USAID/Philippines Science, Technology, Research and Innovation for Development (STRIDE) Program is implemented by RTI International with partners Rutgers, Florida State, and the University of Michigan.

The mission of USAID’s STRIDE is to spur inclusive economic growth by boosting the capacity of Philippine universities to conduct science and technology research aligned with the growth requirements of the private sector, building up the innovation ecosystem for the benefit of the country.
RTI developed and used ecosystem assessment to:

- Identify Priorities for STRIDE
- Look at system performance factors
- Discover hidden, connected issues
1. Reform of procurement rules for research activities

Key Finding: Restrictive regulations make procurement of equipment and consumables for research slow and complex. Equipment may arrive after grant expires.

0 Origin is national enabling environment challenge

1 Research progress slowed or stopped: Universities can’t deliver results in timely manner; Businesses do not gain / lose confidence in research and extension collaboration with universities due to poor/slow performance.

2 Philippine innovations are late to market for licensing and/or spinoff, and miss opportunity for top publications.

3 Faculty discouraged, may abandon research profession or leave Philippines

**STRIDE Action:** Work through GUIRR to secure exemptions from procurement regulations for grant-stipulated research equipment, or other appropriate measure(s) to reduce process-time.

<table>
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<tr>
<th>Chain of Impacts: Procurement Rules</th>
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<tbody>
<tr>
<td>Education</td>
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<tr>
<td>Research</td>
</tr>
<tr>
<td>Extension</td>
</tr>
<tr>
<td>Licensing</td>
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<tr>
<td>Startups</td>
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<tr>
<td>Collaboration</td>
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</tbody>
</table>
Conclusions/Lessons

- Reductionist efforts to focus on separate components of capacity do not provide a sound basis for higher education CD strategies and interventions.

- To accommodate the emergent nature of CD:
  - recognize no “one best way”
  - focus on identifying local champions and constituencies
  - allow flexibility, learning, and adaptation within donor procedures and regulations

- Higher education can be usefully framed as a nested complex adaptive system.
More Information

Derick Brinkerhoff,  
Distinguished Fellow in  
International Public  
Management  
dbrinkerhoff@rti.org

Peter Joyce, Senior  
Research and General  
Manager, Global Center  
for Youth Employment  
pjoyce@rti.org
SYSTEMS THINKING AND HIGHER EDUCATION IN DEVELOPMENT

Jessica Bagdonis, Ph.D.
@APLU
on May 2, 2016
Overview

• Context for Presentation

• Applying “Listen, Engage, Discover, Adapt” to Higher Education in Development

• Final Thoughts on “Internationalization and Global Engagement”
Context for Presentation
HED Meta-Analysis

- Analysis of 6 regional impact assessments of 64 partnerships conducted 2006-2012
  - Partnerships active 1998-2007
    - Eastern Europe (4)
      - Middle East Partnership Initiative (12)
    - South East Asia (13)
    - South Asia (15)
    - Sub-Saharan Africa (12)
    - Training, Internships, Exchanges, and Scholarships (TIES) in Mexico (8)

- In-depth case: Eastern European Impact Assessment
HED Meta-Analysis

- Merriam’s Constant Comparative Method of Case Study Analysis
  - Data read and re-read for comparative examination
  - Open, axial, and selective coding – inductive and deductive

- Data Management - Nvivo 10

- Data Quality
  - Peer Debriefing
  - Data Triangulation
  - Inter-rater/Observer Triangulation
Systems Practice in Higher Education
Listen: *Seek to understand the system “as is”*

- More than 90% cited planning stage as critical
  - Doing “more homework in advance”

- Evidence of higher level outcomes when both institutions felt planning reflected mutuality characterized by:
  - Local ownership (HEI and other local organizations)
  - Sustainability of results discussed at start; created space for adaptive management
Engage: Identify & initiate changes

- Engage diverse stakeholders
  - Horizontal and vertical
  - Internal and external

- Design interventions. In your theory of change, consider:
  - Level of change
  - Sequencing of change

- Intentionally plan and attend to feedback loops
  - Process and results
Discover: *Assess for effects on the system*

“The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.”

— Marcel Proust

- Establish, manage, utilize, & adapt systems
- Look for both repeating and one-off, line and non-linear patterns
- Examine relationship between process and outcomes
- Apply rigor! Qualitative and quantitative
Adapt: *Modify interventions based on discovery*

- **Collaborating - C**
  - Internal & external (i.e., not for benefit of implementers)

- **Learning - L**
  - Deliberate learning agenda
  - M&E system
  - Theory of change

- **Adapting - A**
  - Pause and Reflect
Final Thoughts

Internationalization → Global Engagement
Internationalization ≠ Development

• Transactional vs. Transformational Partnership

  • “Partnerships focused exclusively on student exchange are at the transactional end because students are traded in a manner that resembles transactions in a marketplace.”

  • “Transformational collaborations, in contrast, are those that change or transform entire departments, offices, and institutions, through the generation of common goals, projects, and products.”

(Susan Buck Sutton & Daniel Obst, 2011)
“Global engagement encompasses a vast range of activities, which seldom add to a coherent strategy on campus. While many universities have included internationalization as part of an institutional strategy, few go beyond platitudes. Few define the nature of global engagement or internationalization and few operationalize how broad goals might be achieved… Academic institutions need a foreign policy. Such a policy needs to answer fundamental questions about motivations and means, aspirations and expectations. Most important why is the university involved.”

-Philip Altbach, The Boston College, CIHE, 2012
Putting it All Together

Weak Management

- Systems & Processes

Rigorous Results-Based Management

Global Engagement

Internationalization

Institution-to-Institution

+ Community

Institution-to-Institution

Department-to-Department

Individual-to-Individual

Weak Management

Systems & Processes

Rigorous Results-Based Management
THANK YOU!
SUNY Global

Sally Crimmins Villela
Assistant Vice Chancellor for Global Affairs
sally.crimmins@suny.edu
systemness [ˈsɪs-təm-nəs] n

1. the coordination of multiple components that when working together create a network of activity that is more powerful than any action of individual parts on their own.
THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS
What is Collective Impact?

Five Conditions of Collective Success:
- Common Agenda
- Shared Measurement Systems
- Mutually Reinforcing Activities
- Continuous Communication
- Backbone Support Organizations
What is Collective Impact?

**Collaborative Action**
A group working towards the same outcome
Using disaggregated data
Continuously improving practices over time

**Coordinated Action**
A group of practitioners working on a specific issue
Sharing program information/design
Aligning efforts around a specific issue or population

**Individual Action**
Individual practitioners working on specific issues
Collecting qualitative and quantitative data for their individual programs
Demonstrating impact
What is Collective Impact?

**COLLABORATION**
- Convene around programs/initiatives
- Use data to prove
- Addition to what you do
- Advocate for ideas

**COLLECTIVE IMPACT**
- Work together to move outcomes
- Use data to improve
- Is what you do
- Advocate for what works
Four Pillars for Collective Impact

Pillar 1: Convening Key Stakeholders

Pillar 2: Identifying Shared Goals

Pillar 3: Evidence-Based Decisions

Pillar 4: Sustaining Success
Strategies for Collective Impact

- Disciplined Approach
- Data and Technology
- Shared Accountability, Individual Responsibility
- Foundation in Policy
COLLECTIVE IMPACT Goes GLOBAL
Learning through Development

A new SUNY initiative that endeavors to provide service learning, research and development opportunities for SUNY students and faculty through guided and supported placements in the developing world

- Long-term commitment to regional priority area
- Campus engagement: research, exchange, service learning
- Vital partnerships with local stakeholders
- University exchange to support program sustainability
Learning through Development
Learning through Development

- Foster capacity building with local universities
- Partner with local organizations and NGOs
- Collaborate with U.S. and international organizations with exceptional experience and knowledge of priority region
- Support linkages between development projects and economic sectors