Triple Helix: Emerging Issues for Research and Evaluation

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Triple Helix Thesis

• University plays leading role in Knowledge-based Society: shift from secondary to primary institutional sphere
• Taking the role of the other e.g., university forming firms; government as venture capitalist; industry raising training to higher levels
• Shift from Laissez Faire and Statist to hybrid model of intersecting Institutional Spheres
Why the University?: Students as Competitive Advantage

- flow through of human capital

UNIVERSITY Research Group
Input: Students with new ideas
Output: trained persons, knowledge, start-ups

GOVERNMENT INSTITUTE
Concentrated focus; long term perspective
permanent staff/ in depth expertise

FIRM R&D UNIT: Innovation objective; scanning and project management expertise

UNIVERSITY CENTER: Hybrid Model; elements of academic group, firm R&D unit, Govt. Research Institute
Interactive Triple Helix Model

Innovation at the Intersection of Institutional Spheres
From Boundary Lines to Boundary Spaces

• Defensive vs Integrative Boundaries
• Shift in Opposite directions depending upon Triple Helix Configuration
• from Solid to Porous; from boundary lack to membrane with Selective and Assistive Features
• IUCRC Centers
• Stanford Student Government
  StartX Accelerator
Entrepreneurial university: from a teaching as well as research base

• Research Uni capitalizes research; teaching Uni redistributes and transmits existing knowledge
• Ashland, Oregon: Chatauqua Festival cultural substrate; building upon existing resources
• Oregon Shakespeare Festival (OSF)-> theatre cluster->ancillary arts->tourism
• transition from resource extraction to arts and humanities town
• Academic entrepreneurship-> civic entrepreneurship->cultural-entrepreneurship>business entrepreneurship
Triple Helix Launch Pad Civil Society
Regional Renewal Strategy

- Linking knowledge, innovation, governance and leadership
Response to Crisis

• 1930’s Depression: Underutilized Industrial Capacity
• 2\textsuperscript{nd} Great Depression: Underutilized Intellectual Capacity
• Austerity Vs Innovation Choice
Innovation in Funding Mechanisms

• California Direct Democracy: Ballot Initiatives
• Mid 19th century University of California founded
• 2004 Proposition 71: Response to Bush Admin restrictions on stem cell R&D
• Coalition of scientists, patient advocates, venture capitalists

• CIRM (California Institute of Regenerative Medicine) Model: $3 billion 10 year bond funds = S&T as Infrastructure - “roads and bridges” of the Knowledge Age
Picking Winners

• Disruptive Innovation Focus: US DARPA Visionary Program Manager Model: Response to 1960’s space gap

• Incremental Innovation Focus: UK Aircraft Ministry structured competition with general criteria: Response to 1930’s fighter aircraft gap; 1st choice: small firm with Spitfire,
Innovation Fallacies

• “Build it and they will come” works in limited way if knowledge space highly developed; super attractive environment; heavy subsidies; political clout
• Research Triangle; Sophia Antipolis
• Malaysia multi-media corridor: sales offices
• Newcastle Science City “cranes in the sky” vs
• York University: focus on spin-off process
Stanford: Paradox of Success

- 2005 Study of Technology Transfer from Interdisciplinary Research -- Accidental Success: Entrepreneurship Gap Identified
- Office of Technology Licensing (OTL): Silicon Valley provides sufficient support base “If it's not broken don’t fix it” (Dean of Research) “If it's working well; make it better!”
- Serial Entrepreneurs Vs. People with good ideas lacking support structure
- 2010 Stanford Student Government Study documents Gap; StartX Accelerator founded
Regional Innovation Organizer (RIO)

• Individual or organization that convenes relevant actors in response to crisis or opportunity:
• President Compton of MIT: 1930’s New England
• Stanford Provost and Firm CEO, 1990’s Silicon Valley
• William Mcdonough, NY Federal Reserve Bank. 1990’s New York City
• UFRJ Professor, Rio De Janeiro, 1990’s

• Who has convening capability in your region?
Newcastle Professors of Practice (PoP)

• From US 1/5\textsuperscript{th} Rule to European $\frac{1}{2}$ Uni-Ind Roles

• UK Experiment: Turns PoP model “on its head” from teaching to research
  
  – Forward linear: faculty entrepreneurs moving $\frac{1}{2}$ time to Industry
  – Reverse linear: Industry entrepreneurs (PhDs) moving $\frac{1}{2}$ time to University

Self-sustaining virtuous circle between University and Industry
The Innovating Region

• Self Renewing
• Ability to move from one technological paradigm to another
• Synthesis of new fields with economic and theoretical potential
• Presence of entrepreneurial university
• Government and Private Support
Counterproductive University Ranking Metrics?

- Existing Metrics
  - Overly focused on Research University model: publications and citations

- New Metrics
  - Include contribution to Economic and social development
  - Entrepreneurial Training
  - Knowledge and Technology Transfer
  - Spin-off and Growth
Silicon Valley at Risk?

Bay Area
• Berkeley
• Stanford
• UCSF
• [San Francisco State]

Boston
• MIT
• Harvard
• Boston College
• Boston University
• Northeastern University
• Brandeis
• U Mass Boston
Thank you