“Economic Growth and Academic Entrepreneurship: Lessons Learned for University and Regional Policymakers”

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NY’s Nanotechnology Model: Building the Innovation Economy
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Outline

- Two Economic Theories Relating to University Technology Transfer/Academic Entrepreneurship
- Summary of Key Research Quantitative and Qualitative Results
- Lessons Learned For University and Regional Policymakers
- Shameless Self-Promotion: University at Albany, SUNY-School of Business Entrepreneurial Initiatives and Plugs For Technology Transfer Society/Journal of Technology Transfer
<table>
<thead>
<tr>
<th>Period</th>
<th>Developed Technology</th>
<th>(Primary) University</th>
<th>Created Industry</th>
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<tbody>
<tr>
<td>1940s</td>
<td>Electronic Calculator</td>
<td>University of Pennsylvania</td>
<td>Computers</td>
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<td>1960s</td>
<td>Fiber Optics</td>
<td>MIT</td>
<td>Telecommunications</td>
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<td>1970s</td>
<td>rDNA</td>
<td>Stanford, California</td>
<td>Biotechnology</td>
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<td>1980s</td>
<td>Supercomputing</td>
<td>Illinois</td>
<td>Internet</td>
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<td>1990s</td>
<td>Sequencing of DNA/</td>
<td>Cal Tech,</td>
<td>Pharmacogenomics</td>
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<td>Human Genome Project</td>
<td>Johns Hopkins</td>
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<td>2000s</td>
<td>Nanotechnology</td>
<td>UAlbany</td>
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Routine/Systematic Innovation - Large Firms

Entrepreneurial Innovation - Small Firms

“David and Goliath Symbiosis” - Joint Efforts of Individual Entrepreneur and Large Industrial Firm ⇒ Unprecedented Wealth Creation

Siegel (2006) - Universities Increasingly Developing and Nurturing Startups; Also Linking Small and Large Firms Who Engage in Entrepreneurial Innovation
Key Findings From Academic Literature

- Bayh-Dole Type Legislation Appears to Have Been “Effective” (Siegel et al., 2012)

- Education/Training is Needed for Faculty Members, Post-Docs, and Graduate Students in the Specifics of the Entrepreneurial Process, the Role of Entrepreneurs, and How to Interact with the Business/Entrepreneurial Community

- Universities Are Becoming More “Strategic” in Technology Transfer/Academic Entrepreneurship
Key Results for University and Regional Policymakers (cont.)

- Property-based Institutions (Incubators/Accelerators and Science Parks) Enhance Commercialization, Especially When They Are Focused on an Industry or Sector
- Insufficient Rewards for Faculty Involvement in Technology Transfer at Some Institutions, Especially w.r.t. Entrepreneurial Activity
- Incentives Matter (e.g., Royalty Distribution Formulas), But So Do Organizational Practices and Institutional Policies
Key Results for University and Regional Policymakers (cont.)

- Universities Increasingly Focusing on the Entrepreneurial Dimension of Technology Transfer
- Academic Entrepreneurs Are Not Less Productive in Their Academic Research After Commercialization
- Foreign-Born Scientists Are More Likely to Become Academic Entrepreneurs
- Social Networks of Star Scientists Key for New Firm Creation and Regional Economic Development
Recommendations Based on Studies of Academic Entrepreneurship

- Stressing Entrepreneurship (As Opposed to Patenting and Licensing) Promotes Technology Commercialization and Enhances Economic Impact of University
- Strong Need to Enhance Incentives for Faculty Members to Be Engaged in Entrepreneurial Activity (and Perhaps For Successful Ones to Serve As Mentors) - Including P&T
- More “Open” Immigration Policy for Scientists and Engineers Promotes Academic Entrepreneurship
Recommendations Based on Studies of Academic Entrepreneurship

- Important to Increase Participation/Success of Women & Minorities in Academic Entrepreneurship (as NAS reported in its Evaluation of SBIR)

- Entrepreneurship Research, Education, and Community-Based Initiatives Are Key Complements

- Important To Develop An Entrepreneurial Culture at the University and in the Local Region (More on That Later)

- Corporate Partnerships Yield Better Results With Respect to Academic Entrepreneurship

- Entrepreneurship Growing in Prominence As An Academic Field

- Important for Business Schools to be Actively Engaged in Technology Transfer/Academic Entrepreneurship (work with TTO, Faculty, and Other Colleges on Campus)
UAlbany School of Business-Refocusing on Entrepreneurship and Regional Economic Development

- School of Business, UAlbany, SUNY Strategies Converge

⇒ Strong Support From Central Administration for New Focus on Entrepreneurship (Chancellor, President, Provost)

- At All Levels—Emphasis on University’s Role in Job Creation, Economic Development and Entrepreneurship

- Key Tactic: **Collaboration** (With Other Colleges on Campus and Other Universities in the Region)
UAlbany School of Business Initiatives Supporting Technology Transfer/Academic Entrepreneurship

- New Undergraduate Concentration in Entrepreneurship
- Entrepreneurship Track in Full-Time MBA Program
- Nanotechnology Track in Full-Time and Part-Time MBA Program
- $500K New York State Student Business Plan Competition
- Life Sciences Entrepreneurship-RNA Institute/School of Business
  - $134K Thermo Fisher Student Venture Fund
- New Undergraduate Degree in Digital Forensics-
  (Partnership Involving Five Colleges at UAlbany and 8 Community Colleges in NY State)
UAlbany School of Business Entrepreneurial Initiatives (cont.)

- Entrepreneurial Finance Research Conferences
- $2.8 M Small Enterprise for Economic Development (SEED) Program (Winner of 2012 Tribeca Disruptive Innovation Award)-(MIT, Stanford, and UAlbany!!), UEDA National Award Finalist
- Young Entrepreneurs Academy Chapter
- Editorial Home of Journal of Technology Transfer-
- April 19-20, 2013-Technology Transfer Society Conference-New York Academy of Sciences
  (Keynotes: William Baumol-NYU, David Teece-UC-Berkeley)
NEW $64M SCHOOL OF BUSINESS BUILDING

Elevated rendering from northeast of the New School of Business Building