Why University-Industry Partnerships Matter

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Grand Rounds
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University • Industry Demonstration Partnership

www.uidp.org
Mission

Continually improve the culture of university-industry relationships in order to increase the number and breadth of mutually beneficial research collaborations and to enhance US competitiveness through deepened understanding and cooperation.
My bias

I-U collaborations are beneficial
Industry Trend *(so maybe I am right..)*

In a recent survey, over one-half (54%) of companies have *significantly* increased the use of R&D partnerships and alliances in the last three years.

*An Economist Intelligence Unit report The Economist (2011)*
Industry Trend.. although still small percentage

Companies spend 1-3% (on average) of R&D $$ externally (but necessarily at universities)
University funding sources

In US, industry funding typically represents 5-10% of a university’s R&D portfolio
Funding Sources for Academic R&D¹

- **Industry:** 6%
- Federal Government: 60%
- Academic Institutions: 20%
- Other Governmental Agencies, e.g. State Funds: 6%
- Other Sources – 8%
University funding sources

In US, industry funding typically represents 5-10% of a university’s R&D portfolio

*UC (FY2011) Industry*  
$18,953,838  
7.54%
Collaboration Principles

- Support the mission of each partner
- Foster on appropriate long term partnerships
- Streamline negotiations
Criteria for University Partnerships

- Curriculum/ranking/faculty strength
- Geography
- Influence of successful alumni
- Demographics including diversity
- Success in recruiting
- Success in prior research collaborations

Courtesy of Randy Guschl
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Partnering is more than money......
Johnson Continuum

Lots of ways to partner......
Understanding & Developing the Pathways for Beneficial University-Industry Engagement

Partnership Continuum

University-Industry Demonstration Partnership
Industry-University interactions take many forms

- Strategic Involvement (University-Industry)
- Access to Resources
- Involvement with Researchers
- Involvement with Centers of Expertise And Schools
- Business Development
- Student-oriented engagement

all of which can lead to strategic involvement and impact overall relations

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New University Approaches (*at least for US*)
Re-calibrating sponsored research: foreground IP
Re-calibrating sponsored research: foreground IP

Upfront license
Technology Fee/Bonanza Clause
Express License Programs
Go In Peace Licenses for Start-ups
Different Industry Approaches
Prize Mechanisms

Company issued RFPS

Outsourcing R&D

Corporate Venture
- Prize Mechanisms - Innocentive
- Company issued RFPS – General Mills
- Outsourcing R&D – See 2005 Higgins article
- Corporate Venture
  - Dell launches $60m data storage fund
Government has gotten into the act

- National Center for Advancing Translational Sciences (NCATS)
- Innovation Corps Program (I-Corps)
- JOBS ACT
Issues/Challenges
### Differences in Institutional Missions

<table>
<thead>
<tr>
<th>Non-profit</th>
<th>For profit</th>
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<tbody>
<tr>
<td>Open environment</td>
<td>Need for confidentiality</td>
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<tr>
<td>Freedom to publish research results</td>
<td>Protect competitive advantage</td>
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<tr>
<td>Teaching / Research / Outreach</td>
<td>Maintain “freedom to operate”</td>
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<tr>
<td>Public funding</td>
<td>Must generate economic benefit</td>
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<tr>
<td>Benefit the public</td>
<td>Maximize shareholder value</td>
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Workforce
Dr. William F. Banholzer - Chief Innovation Officer

*It is vital that we support academic research to ensure universities can continue the tradition of excellence in chemical engineering, chemistry and materials science to help address the needs of the industry and of our country.*
Industry and Personnel Dynamics
Commitment/Long term perspective
Commitment/Long term perspective

Strategies and support for industry R&D funding continue to undergo change
Henry Chesbrough and Andrew Garman

companies that invest in their innovative capabilities during tough economic times are those that fare best when growth returns.....
Entrepreneurial Faculty
Faculty Perspectives – Different Currencies

- Faculty run a small business ($250k to >$1M in annual burn
- Industry funding (even for mundane projects) may be critical for running the business
- Many view IP as a “distraction” to building partnerships
- Add significant complexity to managing relationship
Faculty Perspectives – Different Currencies

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- Add significant complexity to managing relationship
- May be the only parties to know the whole story
Buy in across the organization

Philosophy toward industry relations
Centralized industry engagement office
Metrics
Sponsored research approaches
IP
Clinical trials
Regulatory

Conflict of Interest
Tax Free Bonds
Export Control
Counterintelligence
Targeted Industry Partnering

Work with only a select number of institutions
May impact other goals (workforce etc)
U-I relationship schizophrenia

Success is ok....
U-I relationship schizophrenia

Success is ok....

Not too much success......
Small versus long business conundrum
“Ever give a firm handshake over a speaker phone?”

– Warren Buffett

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Its about people.......
COLLABORATIONS

Why University-Industry Partnerships Matter

Anthony M. Boccanfuso
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Basic research, much of which emanates from the outstanding academic laboratories located in the United States and abroad, is the foundation for the innovation that has created new drugs, therapies, materials, and processes that benefit humankind and generate wealth for companies that successfully translate discoveries to commercial success. This is not a linear, one-way process; optimizing the process of discovery to innovation demands dynamic and multifaceted approaches to learning at the university-industry interface.

The American higher education system has long been the envy of the world and has produced the discoveries that gave rise to innovations resulting in many of the products that improve our lives (1). Although universities are outstanding at creating the base knowledge (discovery) used in the creation of new products (innovation), companies are relied on to take these inventions and develop them into usable products. This process has worked well for an extended period, but there are opportunities to expand the level, number, and depth of university-industry collaborations and bolster the creation of new products (Fig. 1). Some trends are also worthy of consideration. Large pharmaceutical companies are reassessing their investments in internal research and development (R&D) and looking to “purchase” promising inventions by partnering with universities (2) and small businesses (many of which rely on government funding, such as the small business innovation research (SBIR) and small business technology transfer programs) (3). Governments (federal and state) have increasingly recognized the value of university-industry partnerships and are starting to make investments that fund these efforts; one can look at the Clinical Translation Science Award from the National Institutes of Health (NIH) as an example of the federal government’s investment to spur and catalyze the discovery-to-innovation process.

A 2008 report prepared by the President’s Council of Advisors on Science and Technology titled “University-Private Sector Research Partnerships in the Innovation Ecosystem” (4) provides an overview of the U.S. R&D enterprise and focuses on the critical role for university-private sector research partnerships, their potential to improve research and innovation, and the obstacles standing in the way of further progress.

Small businesses play an increasingly important role in innovation and the health of the U.S. economy; the linkages of universities with these businesses to support their R&D activities can be extremely valuable. That is why more than two-thirds of companies receiving SBIR support had at least one founder who previously served in the science/engineering academic sector. These companies often contracted and employed universities (17%), faculty (27%), and graduate students (19%) to support their work (5).

GUIDING PRINCIPLES FOR UNIVERSITY-INDUSTRY ENDAVERS

In April 2008, the National Council of University Research Administrators and the Industrial Research Institute issued a joint report on guiding principles for university-industry endeavors (6). This project was dubbed the University-Industry Partnership and served as the precursor to today’s University-Industry Demonstration Partnership (UIDP). In the report, three guiding principles were identified: (i) Successful university-industry collaboration should support the mission of each partner. Any effort in conflict with the mission of either partner will ultimately fail. (ii) Institutional practices and national resources should focus on fostering appropriate long-term partnerships between universities and industry. (iii) Universities and industry should focus on maximizing value resulting from collaborations by streamlining negotiations and measuring results. These guiding principles provide an important foundation for university and industry representatives who seek to develop high-return relationships.

BENEFITS OF UNIVERSITY-INDUSTRY COLLABORATIONS

In an increasingly complex and multi-disciplinary research ecosystem, universities and industries can benefit from partnering. For universities, there are a number of financial and nonfinancial motivations. For large research-intensive universities, industry-sponsored research serves as an important piece in the overall external funding mosaic. According to the most recent data from the National Science Foundation (NSF) (7), universities in the United States expended $5.87 billion of industry research funding in fiscal year 2008; this represents...