Interplay of Intellectual Property Rights and Academic - Industry Collaboration to Foster Digital Inclusion

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Abstract

This paper discusses how to increase university and industry collaborative research.

As a best practices study, the paper describes practices that can create the synergy required to drive collaborative research, innovation, and digital inclusion.

This is particularly critical for developing and growth market countries, but appropriate for all.
Overarching theme

**Vision:**
- The late W. Edwards Deming, known for his advances in quality management, once said that: “competition should not be for a share of the market – but to expand the market.”
- He understood that progress is not a proprietary concept. Every advance is an advance for everyone.

**Challenges:**
- The idea of knowledge sharing is widely embraced today, but we can also be constrained, at times, by directives and traditions—many of which date back decades or more.
- But, commercial enterprises, academia, and governments too, face a unique dilemma. In some ways, we each exist to foster knowledge, but by fearing the loss of competitive advantage we sometimes persist in squelching it.

**Possible solution:**
- Working as partners in relationship based environments and not through transactional negotiations, one entity can fuel the success of the other, in a natural and synergistic way.
Why Collaborative Research Programs do Matter – it’s all about the leverage

Competition should not be for a share of the market-but to expand the market.

W. Edwards Deming (1900 - 1993)
The challenge (opportunity) - tech transfer strain becomes more public

US universities emulate private sector IP practices.

The technology trap
The widely admired US system for transferring ideas from the labs to the marketplace is showing signs of distress.

US university-industry relations are strained. Are other countries heading in the same direction?

An open secret
Sharing intellectual property can be more profitable than keeping it to yourself

The Boston Globe
November 9, 2005
Harvard woos firms to fund research

The Law of Unintended Consequences
Twenty-five years ago a law known as Bayh-Dole spawned the biotech industry. It made lots of university scientists fabulously rich. It was also supposed to usher in a new era of innovation. So why are medical miracles in such short supply?

Wednesday, September 7, 2005
By Clifton Leaf

Is there a need for varying licensing practices for different industries.

Economist.com
SURVEY: PATENTS AND TECHNOLOGY
Oct 20th 2005
An open secret
Sharing intellectual property can be more profitable than keeping it to yourself

Why is this important to the IT industry?
To create new markets in which to compete.
How to change the Academic – Industry collaboration game and change the future

1. Complementary, and sometimes different, collaboration initiatives should be encouraged

2. Standing alone it will be difficult (perhaps impossible) for the largest company, the most prestigious university, or the most advanced government to make significant progress toward improving collaboration barriers

3. A portfolio of collaboration methods should be discussed and considered for each research opportunity. Practicing a ‘one size fits’ approach, on either the university or industry side, never accelerates lasting partnership

4. Industry and university differences exist and if ignored collaboration will suffer
Complementary (and sometimes different) initiatives should be encouraged

Focus: IT industry

Focus: all industries, all disciplines

Focus: all industries, SF Bay area

Focus: all industries, engineering disciplines

Focus: all industries, all disciplines, to attract top level attention (university presidents, etc.)

Focus: all industries, all disciplines, metrics based
Standing alone it will be difficult (perhaps impossible)

The sum of community innovations with the Linux operating system far exceed what any single vendor could create.
Since that 'one size fit' flatters no one, a portfolio of solutions must be explored and navigated

The University - IT Industry Collaborative Research Spectrum

<table>
<thead>
<tr>
<th>Open</th>
<th>Free Participant Use</th>
<th>Joint Ownership</th>
<th>Sponsored Private Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Awards ✓ Gifts ✓ Grants</td>
<td>✓ Fee Free ✓ Community Prepared ✓ Publicly Shared</td>
<td>✓ Access to non-participants ✓ Informed Disclosure ✓ Publicly Shared</td>
<td>✓ Directed research ✓ University licensing ✓ Professors as consultants</td>
</tr>
</tbody>
</table>

Open

And similarly...

University – Industry Relationships

(adapted from NAS presentation by Wendy Streitz)

Academia

Curiosity Driven Research

Applied Research

Technology Development

Commercialization

Industry

From Basic Research to Products on the Shelf
Industry differences exist - and if ignored, collaboration suffers
Different industry business models and characteristics sometimes require different university IPR practices

**Information Technology**
- Usually many patents from different IP owners per product
- No single patent is key enabler / of high strategic value
- Cross-licensing between portfolios common due to the relative small value of each patent

**Pharmaceuticals (recent model)**
- Usually fewer patents per product
- Heavier reliance on IP-income from a few “blockbuster” drugs to drive return on research investment
- ...

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**Bio tech.** – are some components moving from right to left, e.g., to improve world hunger (fresh on demand), stopping the risk of Avian Flu, or check-mating other pandemics?
An example of how IBM is working to bring change to the IT industry and foster digital inclusion
IBM’s University Mission: Build relationships of mutual value for fueling the talent pipeline, innovation, and growth

**Our University Goals**
- Market Opportunity
  - Research
  - Skills
  - Recruiting

**Leveraged Partnerships**
- Collaborative Innovation
  - Government
  - Corporate
  - Academia

**Driving value**
- Build a strong pipeline of *Skills* to grow IBM’s global enterprise
- *Recruit* the best and brightest students for a diverse IBM workforce
- Collaborate on innovative *Research* with the greatest minds in academia
University & Industry Collaboration Strategy – IBM’s newest university research program

2005

2006 & 2007

2008 & 2009

IBM’s Open Collaborative Research (OCR) Program

OCR Program Overview:
• Globally support topics where open innovation benefits IBM and the world;
• IP openly published or available in royalty-free ‘public commons’, software available as open source;
• Implements 2005 Open Collaboration Principles.

OCR Program Fundamentals
• Multi-year – so faculty can take on new students and obligations
• Challenging – research requiring significant innovation
• Open – provide maximum opportunity for others to build on the results
• Collaborative – allow IBM and university PIs to forge deep relationships

✓ 15 new topics identified
  - Software for Maturing Workforce
  - Patient-Centered Care
  - Multicore Computing
  - Service Delivery and more

✓ Industry-leading IP practices create over 20 highly developed research relationships

✓ More than 40 scientific publications & 15+ open source contributions

✓ Recruiting/Talent Pipeline
  - PhD interns and student competitions
  - Academic visitors & employee dev.
  - RSM hires

✓ Leveraged external funding

The New York Times
TECHNOLOGY | December 14, 2006
I.B.M. and Universities Plan Collaboration
By STEVE LOHR
Additional References

Websites:
- University & Industry Innovation Summit (www.ibm.com/university/collaborativeresearch)
- National Academies (www.nationalacademies.org/stl/University_Property.html)
- University & Industry Demonstration Partnership (www.uidp.org)
- Ewing Marion Kauffman Foundation (www.kauffman.org)

Articles:
- Where is the New Science in Corporate R&D?  By Jerry Thursby & Marie Thursby (http://www.sciencemag.org/cgi/content/summary/314/5805/1547)
Summary

- For developing and growth market countries, in particular, industry access, partnership, and relationships will be critical.

- Over emphasizing transactional IPR arrangements and single deal licensing income will not have the desired result.

- All forms of university – industry collaboration are appropriate and should be explored (across the spectrum previously presented), and universities and industry should deliberately and proactively seek long term partnerships.

- Progress may be slow at times, but the potential of collaborative innovation, by definition, necessitates that we work together for change.

- Better communications, more understanding and continued vigilance is needed, throughout the university/industry/government ecosystem.
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