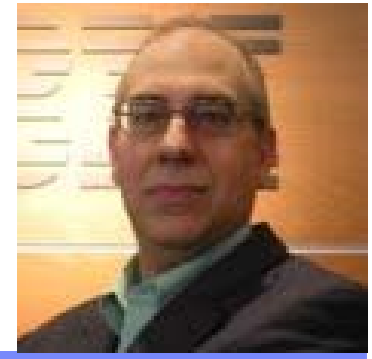
Intellectual Property and Standards

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

Louis Masi
Strategic Alliances, IBM Corporation
1.914.766.3059, lmasi@us.ibm.com



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:

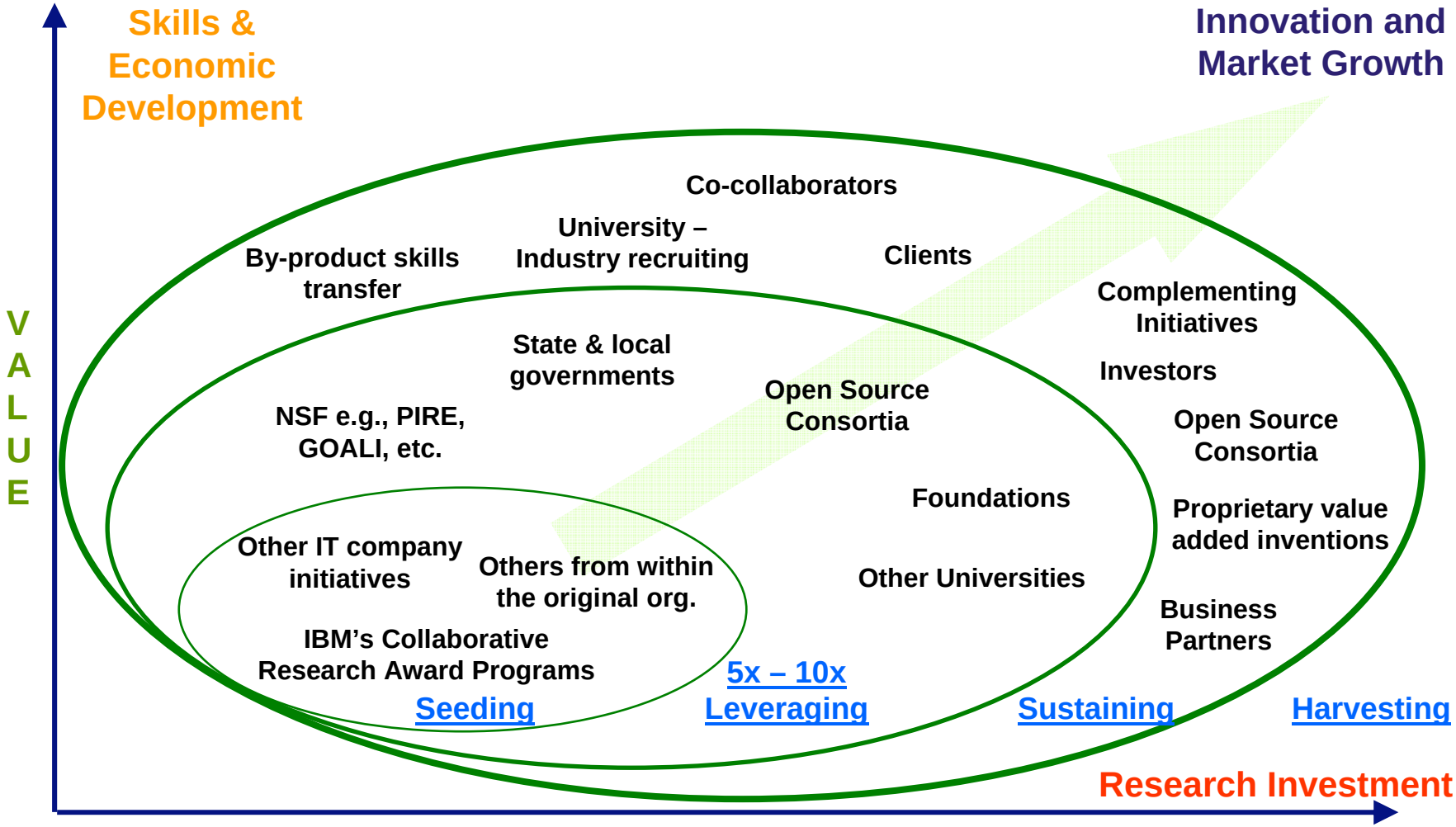
- The idea of knowledge sharing is widely embraced today, but we can also be constrained, at times, by directives and traditions—many of which date back decades or more.

- 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

WSJ.com THE WALL STREET JOURNAL. ONLINE

December 21, 2004

College Try

Columbia's Pursuit Of Patent Riches Angers Companies

As University Seeks to Extend A $600 Million Bonanza, Biotechs Refuse to Pay Up Debate Over Academic Values

US universities emulate private sector IP practices.

The Boston Globe

November 9, 2005

Harvard woos firms to fund research

Universities seek additional revenue streams from companies, IP income, etc.

FORTUNE

GOVERNMENT

The Law of Unintended Consequences

Twenty-five years ago a law know 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

Bv Clifton Leaf

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

The technology trap

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

Vol 437 | 13 October 2005

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

Economist.com

SURVEY: PATENTS AND TECHNOLOGY

An open secret

Oct 20th 2005

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

University & Industry Innovation Summit

Focus: IT industry

University-Industry Demonstration Partnership

Focus: all industries, all disciplines

BASIC
Bay Area Science and Innovation Consortium

Focus: all industries, SF Bay area

American Society for Engineering Education
Founded in 1893

Focus: all industries, engineering disciplines

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Board on Science, Technology and Economic Policy
Policy and Global Affairs

Committee on Science, Technology, and Law
Policy and Global Affairs

Committee on University Management of Intellectual Property:
Lessons from a Generation of Experience, Research, and Dialogue

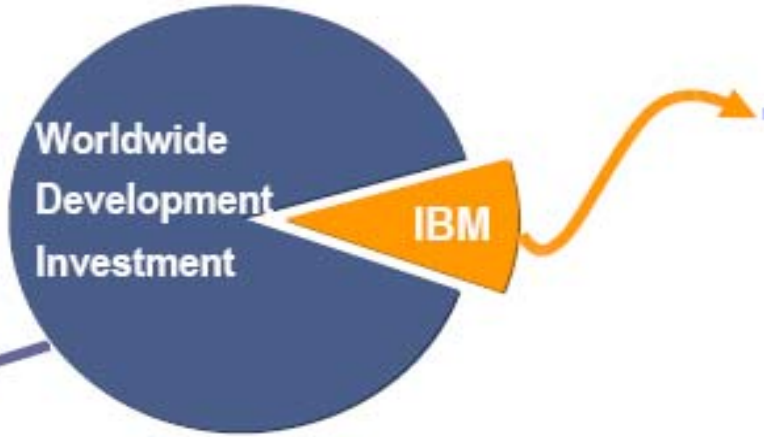
Focus: all industries, all disciplines, to attract top level attention (university presidents, etc.)

AUTM
The Association of University Technology Managers

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



- Leveraged investment to meet unique needs
  - Share investments within company
  - Invest for particular products

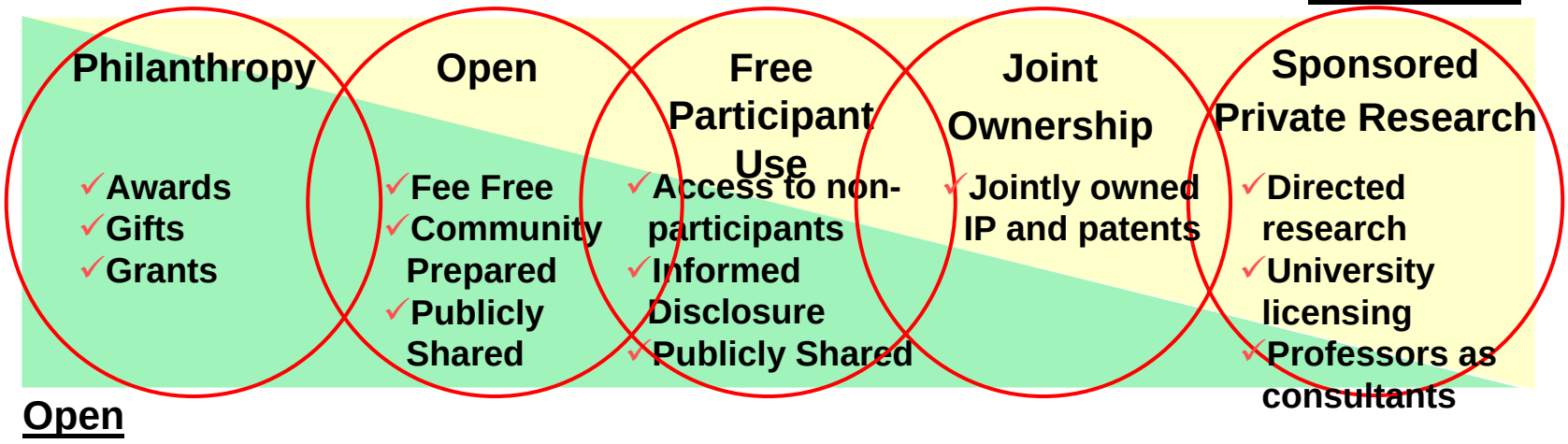
- Enterprise Linux Investments
  - IBM, Intel, HP, Red Hat, Novell, and many more
- Academia, Research
- Tailored Industry Investment
- Hobbyist Investment

Investments are matched many times over.

- Development model is not free
- Small investments can be highly leveraged
- Multiple hierarchies of leverage

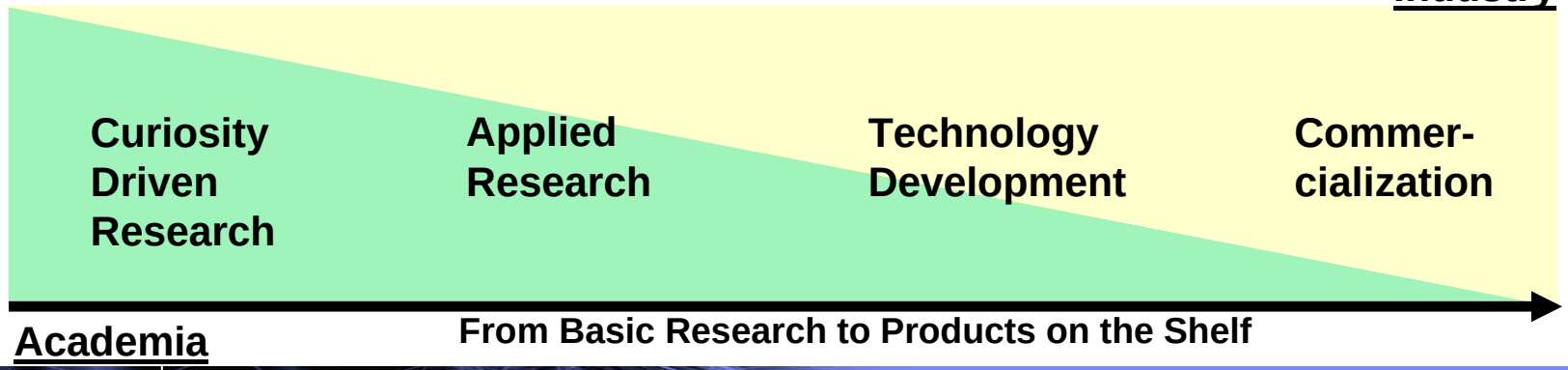
Since that 'one size fit' flatters no one, a portfolio of solutions must be explored and navigated

The University - IT Industry Collaborative Research Spectrum



And similarly…

University – Industry Relationships (adapted from NAS presentation by Wendy Streitz)



Industry differences exist - and if ignored, collaboration suffers

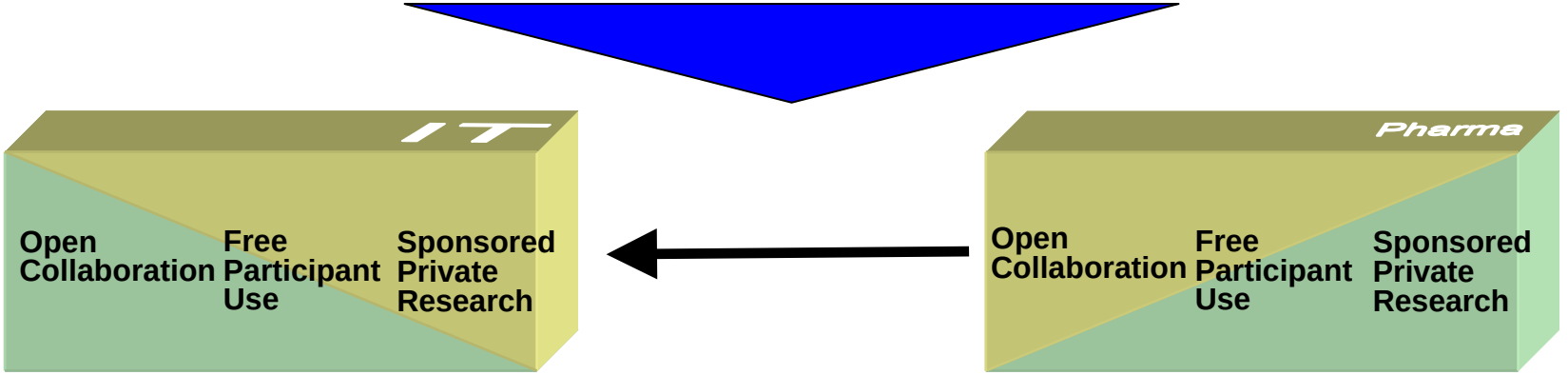
Different industry business models and characteristics sometimes require different university IPR practices

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)

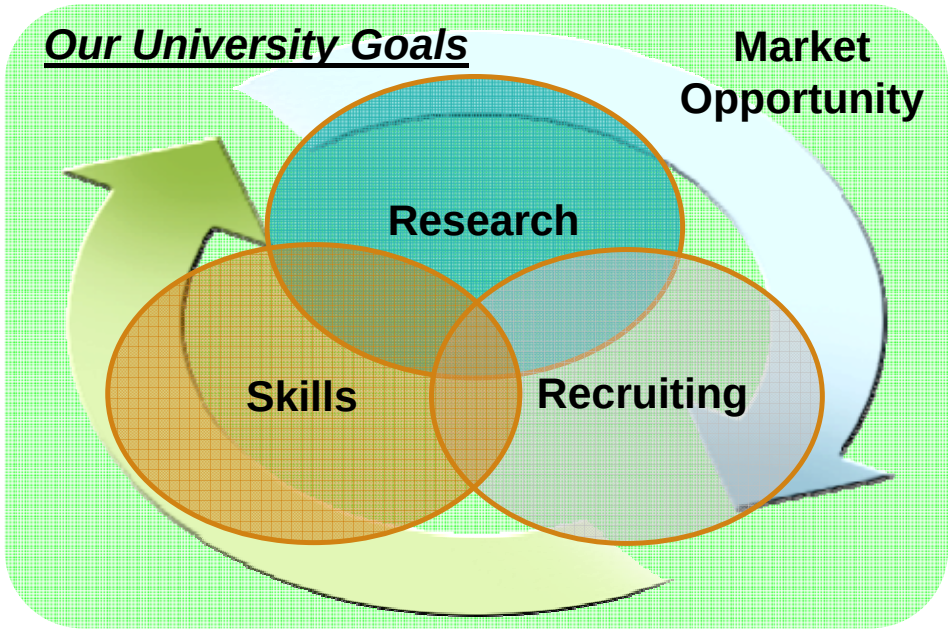
- ✓ Usually fewer patents per product
- ✓ Heavier reliance on IP-income from a few "blockbuster" drugs to drive return on research investment
- ✓ ...

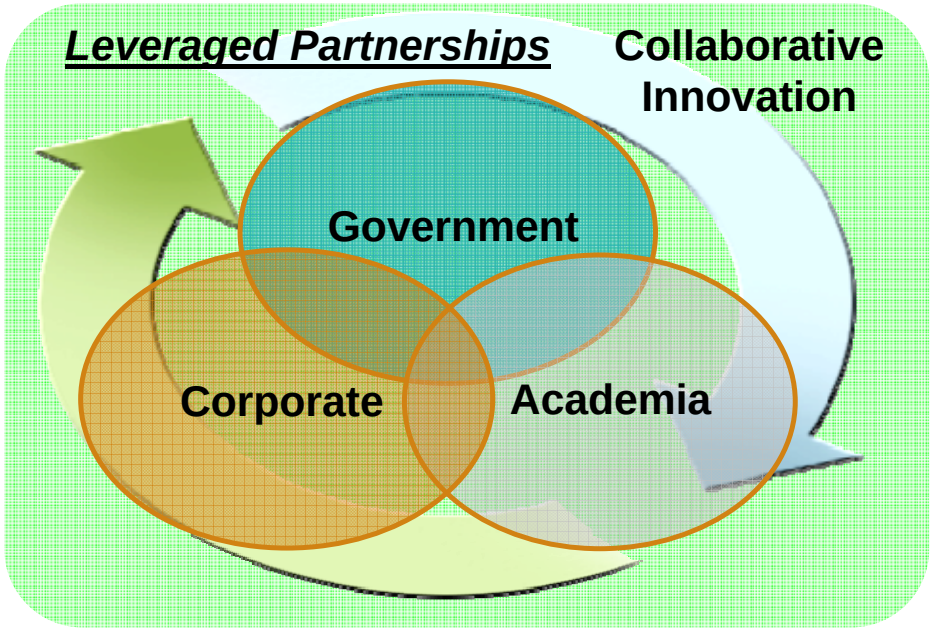


Bio tech. – are some components moving from right to left, e.g., to improve world hunger (fresh on demand), stopping the risk of Avian Flu, or check-mating other pandemics?

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





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**

University & Industry Innovation Summit

Summit Team's Open Collaboration Principles

Summit Team's Free Participant Use Principles

UNIVERSITY & INDUSTRY INNOVATION FORUM

IBM's Open Collaborative Research (OCR) Program

The New York Times

TECHNOLOGY | December 14, 2006
I.B.M. and Universities Plan Collaboration
By STEVE LOHR

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**

RICE, Indian School of Business, USC, UC Davis, Carnegie Mellon, Rutgers, Imperial College London, Georgia Tech, Berkeley, Columbia University, Tsinghua University, University of Dundee, University of Illinois Chicago · Springfield · Urbana-Champaign

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

eclipse, OOPSLA, COIN-OR, acm, ACM/IEEE International Conference on Software Engineering (ICSE), VLDB 2007

✓**Recruiting/Talent Pipeline**

- PhD interns and student competitions
- Academic visitors & employee dev.
- RSM hires

✓**Leveraged external funding**

EPSRC Engineering and Physical Sciences Research Council, MICRO Microelectronics Innovation and Computer Research Opportunities, NSF

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:

- Open Education: A New Paradigm, The promises of open technologies for education By Michael King (www.universitybusiness.com/viewarticle.aspx?articleid=1192&p=2)
- Building a New IP Marketplace, Global Innovation Outlook 2.0 (http://domino.research.ibm.com/comm/www_innovate.nsf/images/gio-ip/$FILE/building_a_new_ip_marketplace-report.pdf)
- Where is the New Science in Corporate R&D? By Jerry Thursby & Marie Thursby (http://www.sciencemag.org/cgi/content/summary/314/5805/1547)
- Barriers to Innovation: Intellectual Property Transaction Costs in Scientific Collaboration By Megan Ristau Baca (http://www.law.duke.edu/journals/dltr/Articles/2006dltr0004.html)
- Venture Capital – University Interface: Best Practices to Make Maximum Impact By Krisztina "Z" Holly (http://stevens.usc.edu/docs/vcstudy.pdf)

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

Louis Masi,
Strategic Alliances
lmasi@us.ibm.com
(914) 766-3059

Dawn Tew, Project Director,
Collaborative Research Initiatives
dawn2@us.ibm.com
(877) 396-1243