

MIT Office of Corporate Relations  
& Industrial Liaison Program  
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Executive Director

Industry Working With Academia



Massachusetts Institute of Technology



# Why Industry Comes to Academia

- **Monitor emerging/cutting-edge technologies**
- **Discover technologies to strengthen existing businesses**
- **Identify new management practices**
- **Gain insight from internationally-recognized experts**
- **Strengthen strategic decision-making-**
  - *development of new products and processes*
  - *implementation of innovative management practices*
  - *achievement of effective growth strategies*
- **Access technical and domain expertise through research collaborations and faculty consulting**
- **Identify and access technology and expertise outside company's core competencies**
- **Technology transfer through licensing**
- **Recruit new employees**
- **Enhance technical and managerial skills through training**

# U.S. Academia's Research Funding Engine

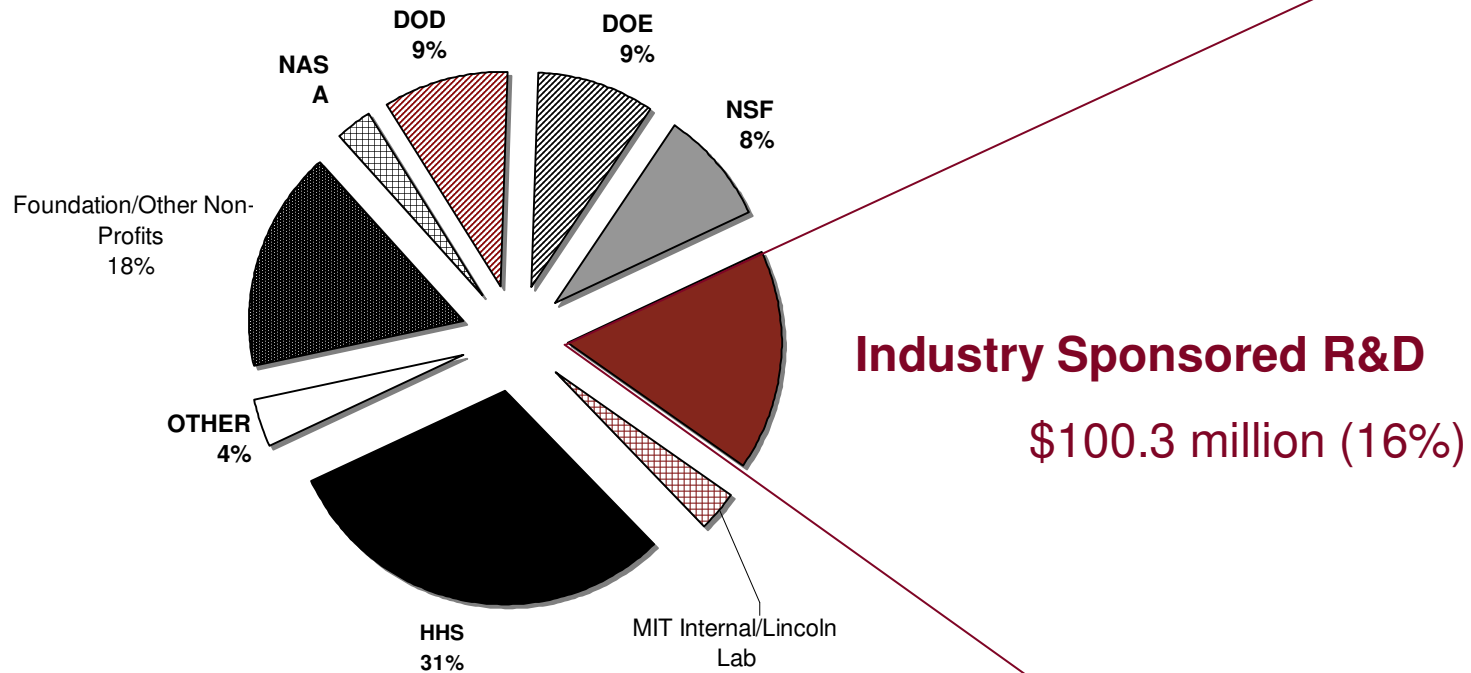
- **US academic institutions spent \$49.4 billion on R&D in 2007 (est.)**
  - *76% basic, 24% applied*
- **Academia performed an estimated 57.1% of the nation's total basic research in 2007**
  - *Basic research drives new knowledge, innovation*
- **Federal government continues to provide the majority of the funding for academic R&D**
  - *Federal share of academic R&D funding was more than 60% in 2007*
- **Industry funding of academic R&D totaled \$2.7 billion(2007)**
  - *After a 3-year decline between 2001 and 2004, industry funding increased for a third year in a row*
  - *Industrial support accounts for the smallest share of academic R&D funding*
  - *Provides excellent leverage for R&D spending*

Source: NSF



# MIT Research Funding -- FY 2008

- **On-Campus R&D: \$643 million**



Source: MIT Data Warehouse -- FY08 Expenditures by Sponsor

# MIT Total Industry Support -- FY 2008

- **Total Industry Support -- \$241.6 million**



Industry Sponsored R&D -- \$100.3 million



Licensing -- \$87.5 million



Gifts -- \$42.6 million



Other -- \$9.6 million

Source: OCR FY08 Industry Support

# STRONG INDUSTRY and ECONOMIC FOCUS

- **MIT researchers focus on discoveries of real practical impact and strong commercial value - *the faculty need industry - it helps them identify the problems!***
  - *Vibrant Patenting/Licensing Activity (FY08)*
    - ❖ 522 new invention disclosures
    - ❖ 282 new patents filed
    - ❖ 68 licenses granted
    - ❖ \$89.1 million total licensing revenue
- **Economic Impact of Boston's Universities**
  - *2003 "Engines of Economic Growth"*
    - ❖ 8 research universities contributed \$7.4B to local economy in 2000
    - ❖ Create "intellectual infrastructure" of region's knowledge-based economy
    - ❖ Employ 50,000; spend \$3.9B locally
    - ❖ University TLOs attracted \$1.4B over 5 years
    - ❖ Spur Growth, stabilize in downturns

# Partnering with Industry

- **Industry Leaders Multi-Year Multi \$M Alliances with MIT**
  - *Amgen, Merck, Ford Motor Company, Nippon Telephone and Telegraph, Merrill Lynch, DuPont, Microsoft, ABB, Hewlett-Packard, Quanta, Nokia, Novartis*
- **MIT International Alliances** - *Masdar Institute of Science & Technology, MIT Singapore Alliance, Cambridge MIT Initiative, Alliance for Global Sustainability*
- **Research Collaborations and Research Consortia**
  - *Multi-company engagements with Laboratories and Centers*
- **Executive and Professional Education -**
  - *Sloan School of Management, School of Engineering*
- **MIT Student Internships in Industry - Summer internships**
  - *MISTI - international student study and internship program*
- **MIT Industrial Liaison Program**
  - *200 corporate members worldwide*



# Solving Real-World Problems

## *Recent Successes - MIT startups:*

- **Brontes: 3D dental imaging**
  - *acquired by 3M- new business*
- **Momenta: “generic biologicals”**
  - *Carbohydrate drugs; major alliance with Sandoz/Novartis*
- **Alnylam: RNAi therapeutics**
  - *First RNAi therapeutic for infectious disease: FDA submission of IND (RSV infections)*
  - *Alliance with Novartis for flu*
- **A123: ”printable” lithium batteries**
  - *Already in consumer products (DeWalt)*

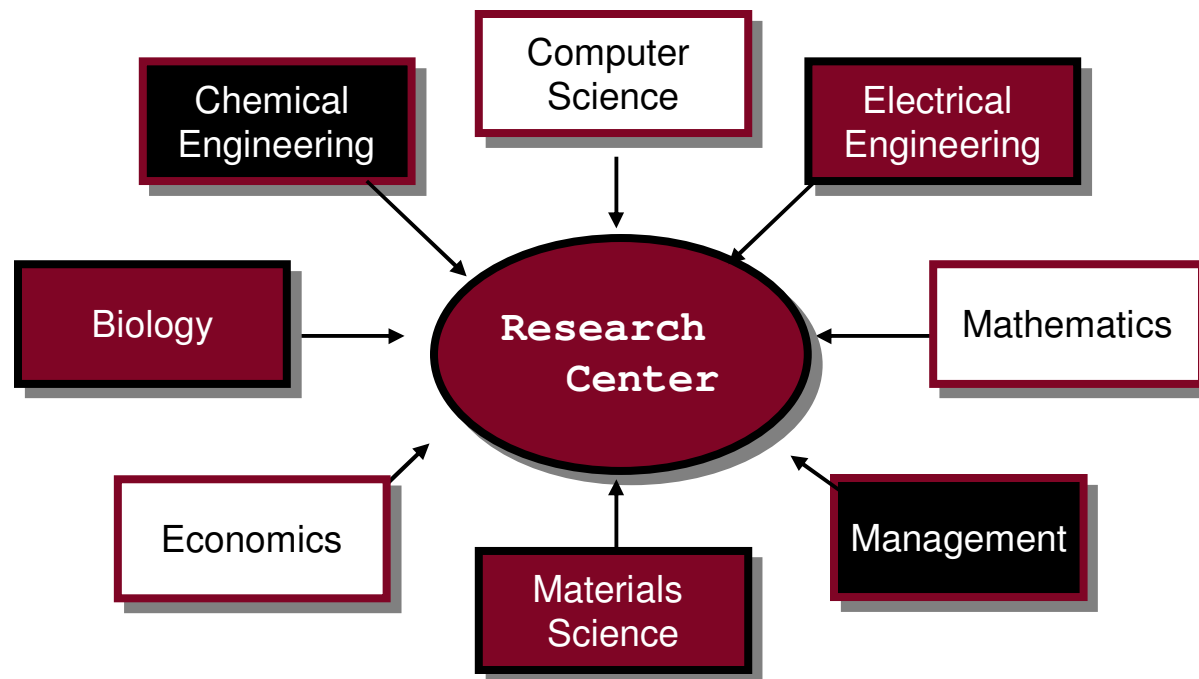
## *More Success Stories:*

- **Omni-Guide: “perfect mirror in a wire”**
  - *From fiber optic cable to surgical instrument: FDA approval pending*
- **Z-Corp: 3-D printing—models**
  - *Acquired by Comtex; significant expansion expected*
- **Cardiomems: sensing of pressure in repaired aneurysms**
  - *Media Lab signaling invention allows wireless sensing*



# MIT - Technology Powerhouse

- **72 MIT-related Nobel Prize winners**
  - *Including 7 current faculty members*
- **5 schools, 33 departments/divisions/sections/other programs**
  - *57 interdisciplinary research units*



Source: MIT Facts 2008



# Advancing Your Agenda at MIT

- **MIT poses a complex challenge to industry**
  - *how to find the right experts?*
  - *how to raise faculty awareness of your research objectives?*
  - *how to identify the right programs?*
  - *how to organize the right interactions?*
  
- **MIT has several offices to help the process:**
  - *Office of Sponsored Programs (for research contracting)*
  - *Technology Licensing Office (for licensing)*

*Neither of these offices helps industry initiate collaborations*

## Corporate Access to MIT

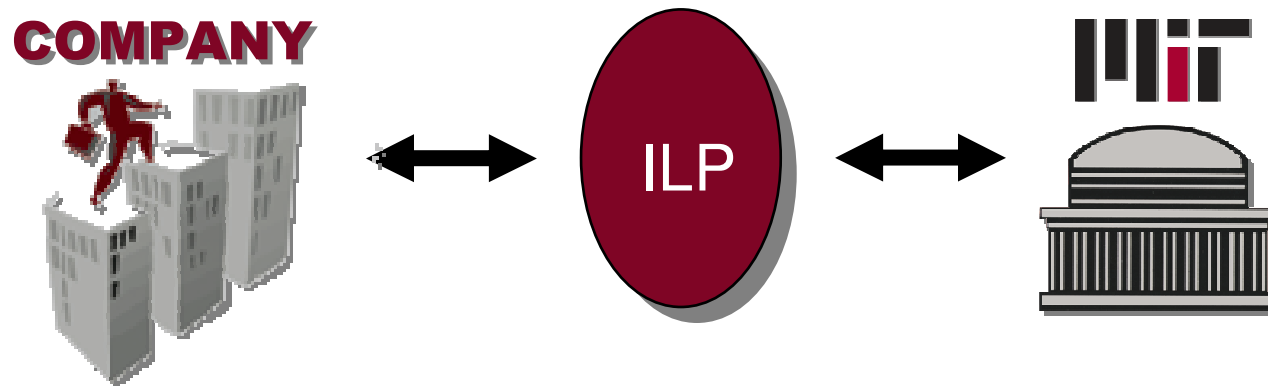
- 195 of the world's leading companies partner with the **Industrial Liaison Program** to advance research agendas at MIT (FY08).
- ILP member companies account for approximately 36% of all corporate gifts and single-sponsored research expenditures at MIT.

Source: OCR FY07 Industry Support



# What is the Industrial Liaison Program?

- The ILP is industry's chief gateway and guide to MIT.



- Provides expert counsel on building productive partnerships
- Develops customized, cost effective programs
  - *assess, address strategic research needs*
  - *facilitate faculty, researcher interactions*
  - *monitor emerging technologies and innovative management practices*

## ILP Facts

- **Founded in 1948**
- **Largest program of its kind in the world**
- **Worldwide industry membership**
  - *31% N. America, 30% Asia, 32% Europe, 7% Other*
  - *broad range of industrial sectors, both traditional and high-tech*
- **20 Industrial Liaison Officers\***
  - *average 15 years of industry experience*
  - *most with advanced degrees*

## Industrial Liaison Officer

- **An MIT-based professional who provides a highly-productive interface to help initiate, integrate and manage the company's MIT interactions**
  - *knows the company's people and business, and needs of stakeholders in the MIT relationship*
  - *knows MIT and its resources*
  - *helps interest MIT people in meeting with and working with the company*
  - *provides an easy-to-use central point of access to MIT information and interactions for anyone in the company*

# Typical Benefits Companies Receive

- Monitor emerging/disruptive technologies
- Discover new technologies to strengthen existing businesses
- Validate or invalidate key investment decisions/ new product development
- Solve short term technical problems
- Identify new industry partners
- Use faculty for consulting/ advice
- Participate in new industry standards setting
- Train employees
- Recruit new employees

## ILP Action Plan

- **Prioritizes interest areas**
- **Identifies ideal company participants, stakeholders**
- **Schedules specific activities**
- **Develops objectives for MIT interactions**
- **Provides ongoing assessment, advice on next steps**

## Typical ILP Services and Deliverables

- **On-campus sessions with faculty and research staff**
- **Faculty visits to company sites**
- **Executive research briefings**
- **Customized research reports**
- **Symposia and conferences**
- **Publications**
  - *ILP edition of Technology Insider*
  - *Web reports and digital presentation archive*
  - *Technology Review*
- **Facilitated access to MIT people, resources**

# ILP Web Site

- **Calendar of MIT/Corporate Events**
- **Past Events Archive**
  - *Digitized content from past ILP events*
- **ILP KnowledgeBase**
  - *Explore emerging technologies*
  - *Learn about relevant research*
  - *Identify faculty members with appropriate expertise*
- **MIT Technology Insider**
  - *Electronic publication delivered each month via e-mail*
  - *Recent developments within MIT's R&D community*
  - *Potential, competitive impact of emerging technologies*
  - *ILP insights on how best to access MIT expertise*

[ilp-www.mit.edu](http://ilp-www.mit.edu)



# Partnering with Industry - ILP

## Success story - ILP assisted MIT collaboration:

### **Yuan Foong Yu Paper - ILP member:**

- *Early adopter of RFID technology.*
- *First-mover advantage when Walmart required RFID tags on all products.*
- *Got contract for packaging supplier for much of Pacific rim.*

## Success story - ILP assisted MIT collaboration and consulting:

### **Time Warner Cable - ILP member:**

- *It's own SpeechWorks-based interactive voice response system needed improvement.*
- *ILP connected to MIT Professor (co-founded SW), who then consulted for further development.*
- *TWC rolled out "Virtual Agent" in 2006 and expanding- "some people don't even know it's a computer".*

<http://ilp-www.mit.edu>

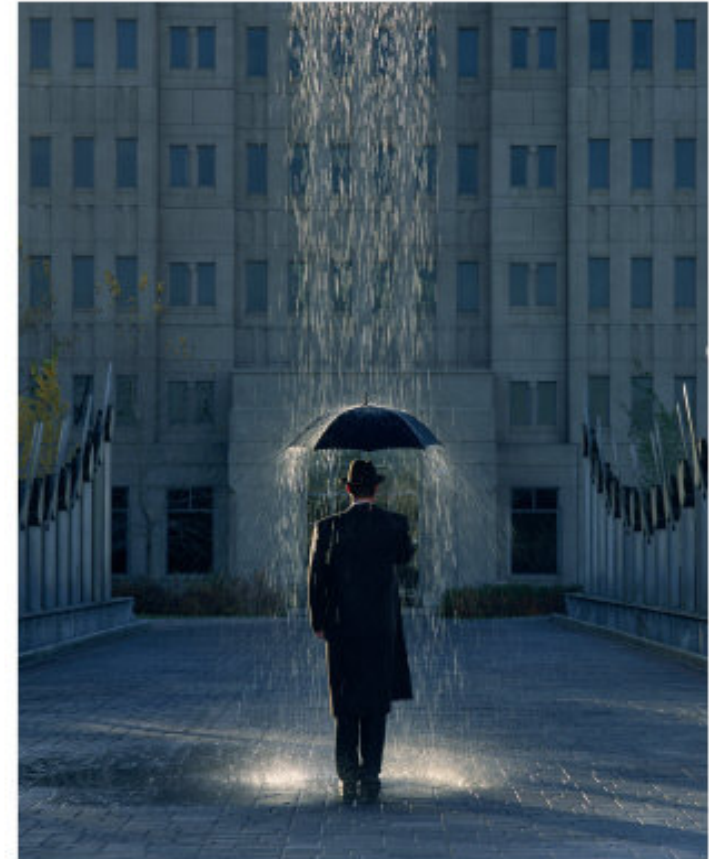


# Best Practices for Working with Academia

- **Make connections early**
- **Establish point contacts and clear lines of responsibility for the relationship**
- **Visit regularly**
- **Think broadly and openly**
- **Engage at a peer level**
- **Work with students**
- **Bring challenging problems**
- **Make research truly collaborative**
- **Meet regularly with the TLO**
- **Utilize larger executive briefings for strategic purposes**

# Is there a bad time to innovate?

- “During economic downturns, innovation is the single most important condition for transforming the crisis into an opportunity”\*
- “...there’s no bad time to innovate...you need to invent your way out of a tight box”\*\*
- Google increased R&D spending 72% last year and RIM/Blackberry developed their key product platform during last downturn in 2001/2002\*\*\*
- “[Recessions] are the periods in which it is not necessary to discourage investment by competitors -- they have already been discouraged.”\*\*\*\*



\* Business Week, 10/28/08

\*\* Jeff Bezos, CEO Amazon, interview in Business Week, 4/08

\*\*\* 2008 White Paper, “Innovation Culture”, by Richard Eagar and Charles Boulton, Arthur D Little

\*\*\*\* *Henderson on Corporate Strategy*, Bruce Henderson, Founder and CEO, Boston Consulting Group

## Join the ILP

- Find and engage MIT experts
- Monitor and investigate new technology developments
- Expand knowledge and business networks
- Gain insight into a variety of issues related to your business and research priorities
- Learn about — and exploit — new opportunities



# MIT Industrial Liaison Program

Thank you.



Massachusetts Institute of Technology

