MIT INDUSTRIAL LIAISON PROGRAM ILP

The Role and Responsibility of the University in Technology Transfer to Industry

ISO and USIMP
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Outline

- Strategic perspective on academic-industry relations, complements
- Simple perspective on innovation and commercialization – why it matters
- The university responsibility for technology transfer:
  - *Philosophy*
  - *Impact on society*
- The university role in technology transfer:
  - *Mechanisms*
  - *University technology transfer organization*
  - *Some important aspects of university licensing*
- Summary

Why Industry Engages with Academia

- Identify new management practices
- Monitor emerging/cutting-edge technologies
- 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*
- Discover new technologies through [proprietary] research collaborations
- 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

The Academic-Industry Relationship/Complement

- Different missions:
  - *Academia - education and advancement of knowledge*
  - *Industry - maximize returns to stakeholders/owners*
- Some common interests:
  - *Global problems - opportunities and challenges*
  - *Knowledge transfer - both directions*
  - *Human resources - talent acquisition/talent development*
- The research complement:
  - *Academic **basic** research "feeds" industry **applied** research and **product development***
  - *Industry provides financial support*

The challenge for both to understand

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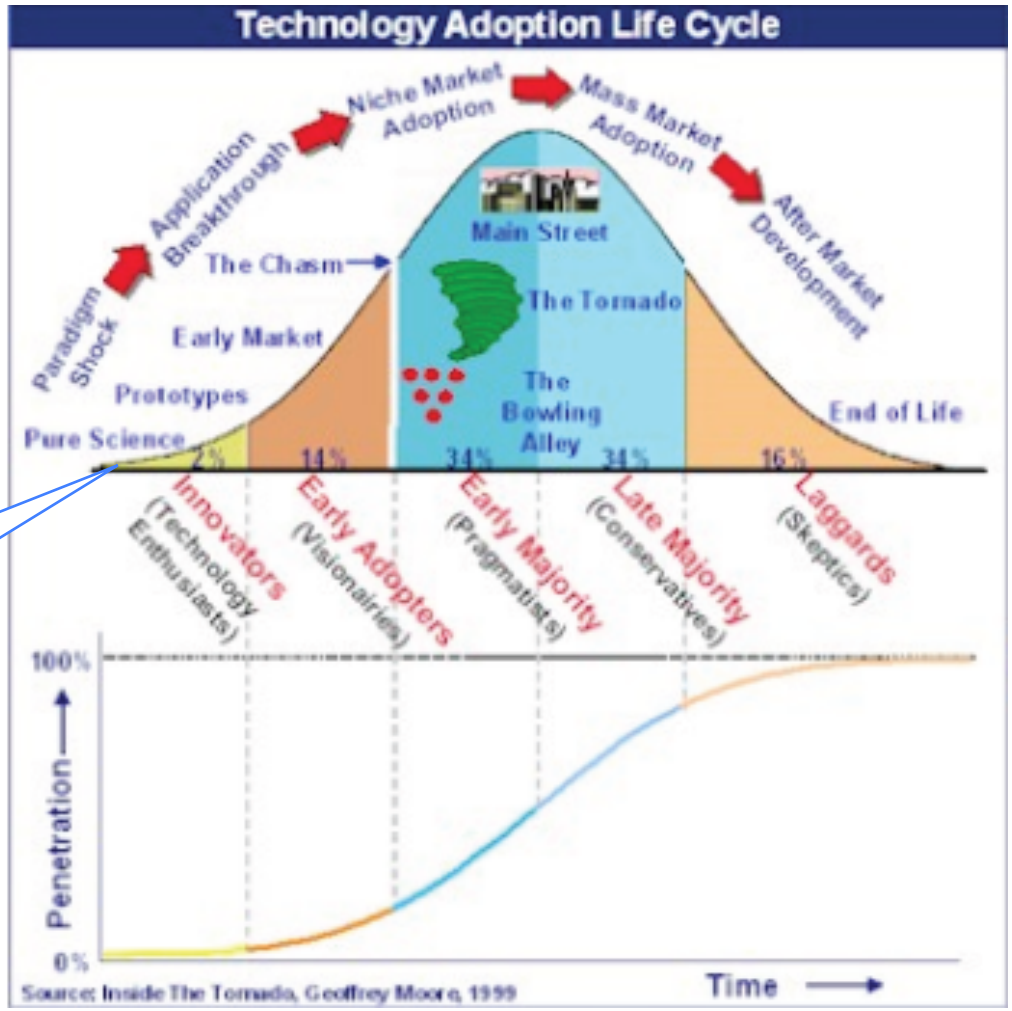
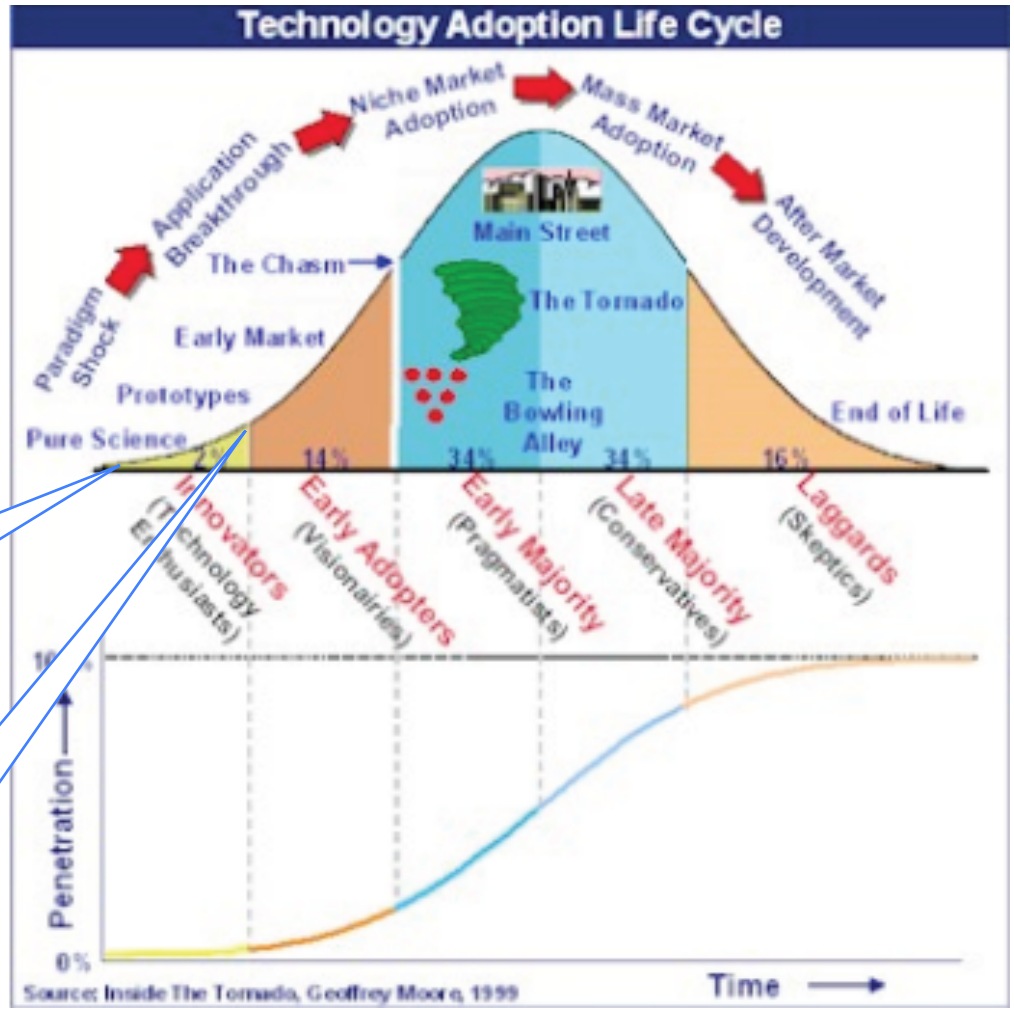
The Innovation Life Cycle



University, Government Labs

The Innovation Life Cycle



University, Government Labs

Start Ups, Angels, VC

High risk profile a challenge for industry

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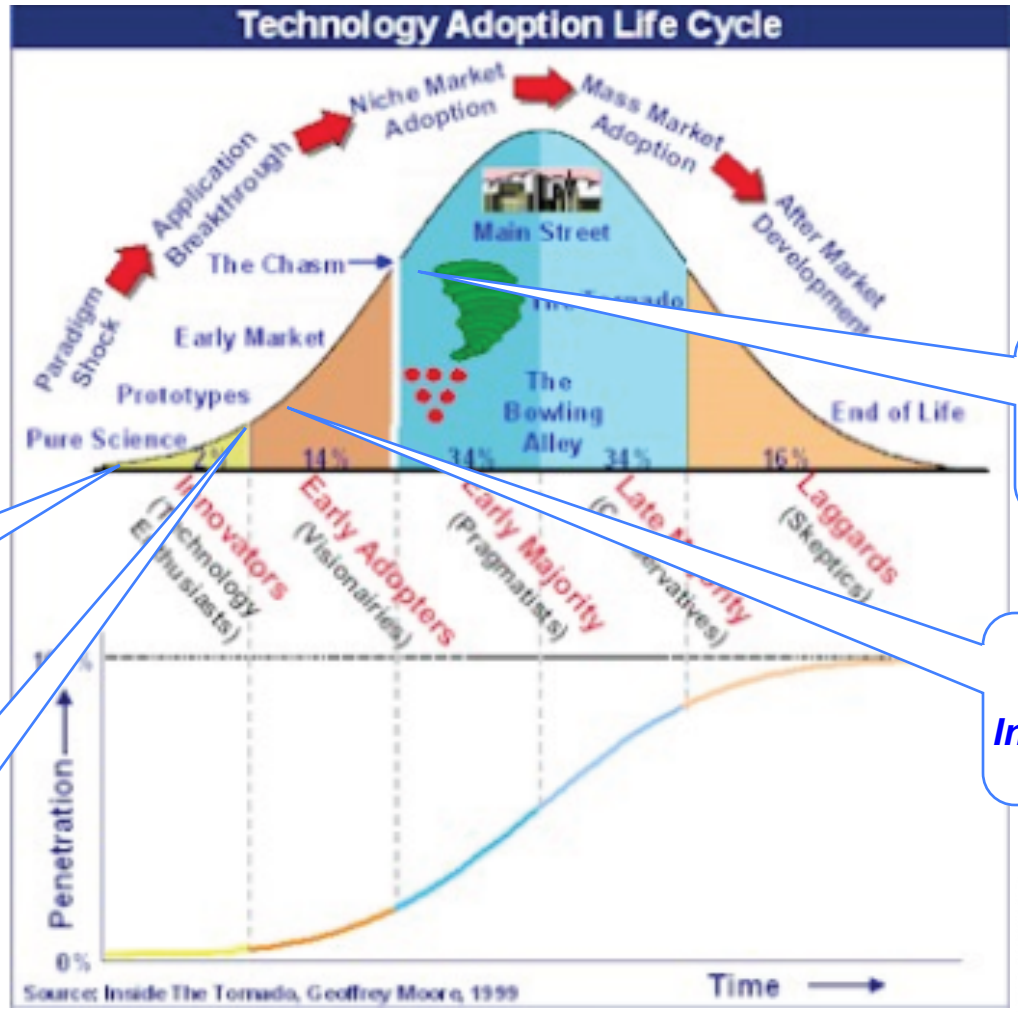

University, Government Labs

Start Ups, Angels, VC

Industry Followers, Internal Capital, Acquisition

Industry Leaders, Internal Capital, Acquisition

Company strategy and execution are critical

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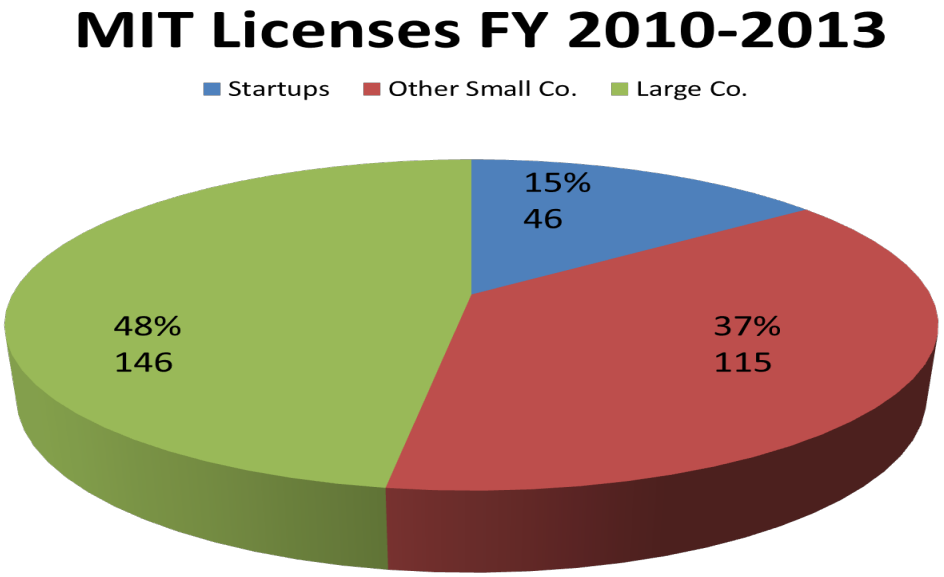
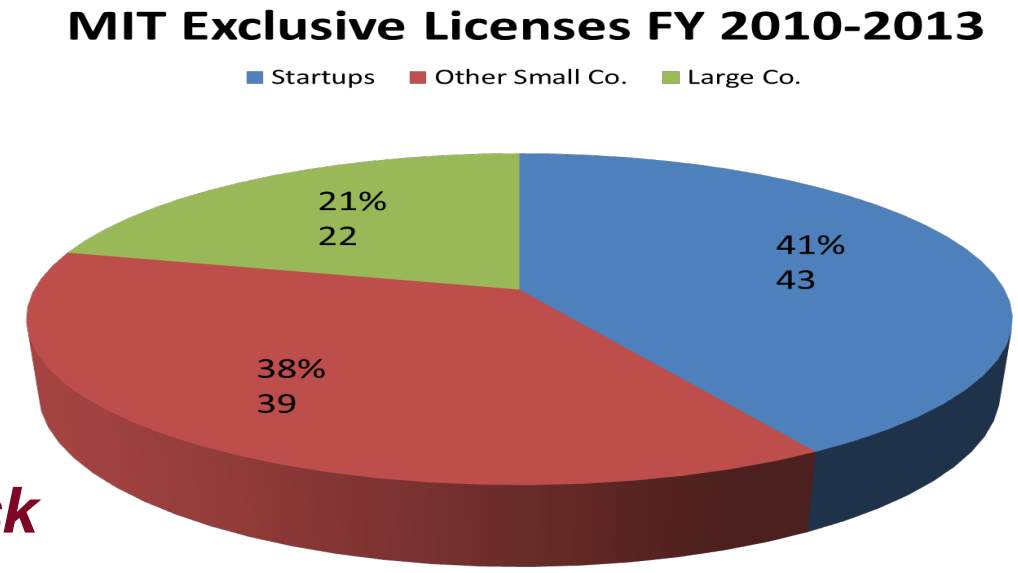
University Philosophy in Technology Transfer

- Primary objective is to transfer technology:
  - *Achieve commercial reality for the invention with societal impact*
  - *Get a fair return for inventors and the university*
- Seek patent protection (when/where defensible):
  - *Necessary for successful licensing, technology transfer*
  - *No company wants to be first with un-protected, innovative product (better to be second)*
- License exclusively:
  - *Immature technology is high-risk, need potential for high reward*
  - *Exclusivity makes it easier to attract investment*
- Do NOT allow financial greed to obstruct licensing:
  - *If licensee is successful, everyone will benefit*
  - *Set running royalty to be a fraction of added profit*

University philosophy for "volume"

MIT Technology Transfer Volume





Industry managing risk

MIT Technology Transfer Volume and Impact

Volume (FY2012)

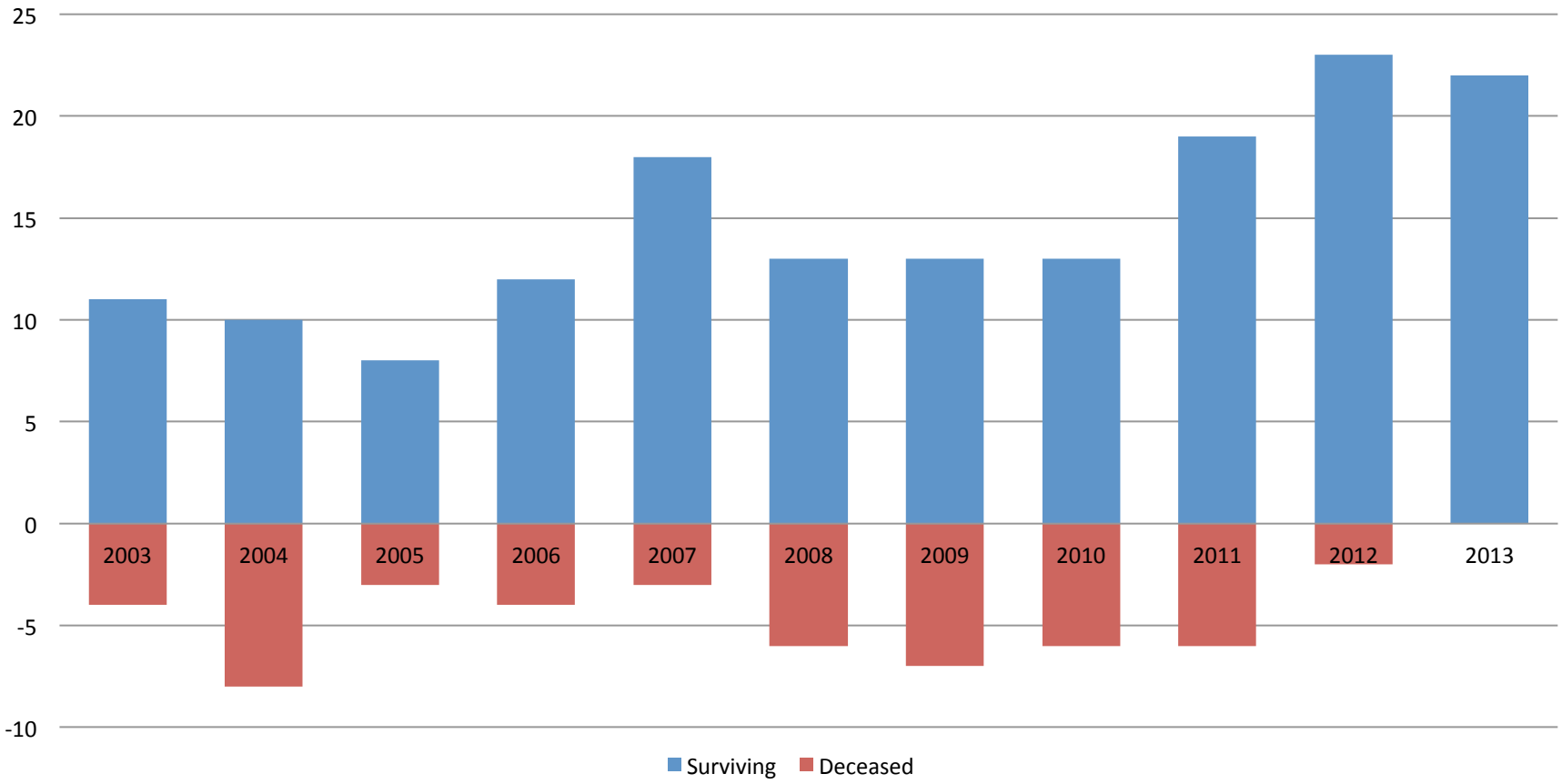
• Invention disclosures	632
• US patents filed	~2-300
• US patents issued	153
• Licenses & options granted	113
• Companies started with MIT IP	26

Financials (FY2012)

• Revenues	$85M
• Royalties	$70M
• Cashed-in equity	$3.3M
• Total patent costs	$17.6M

MIT Technology Transfer Impact

Startups from MIT Licensing



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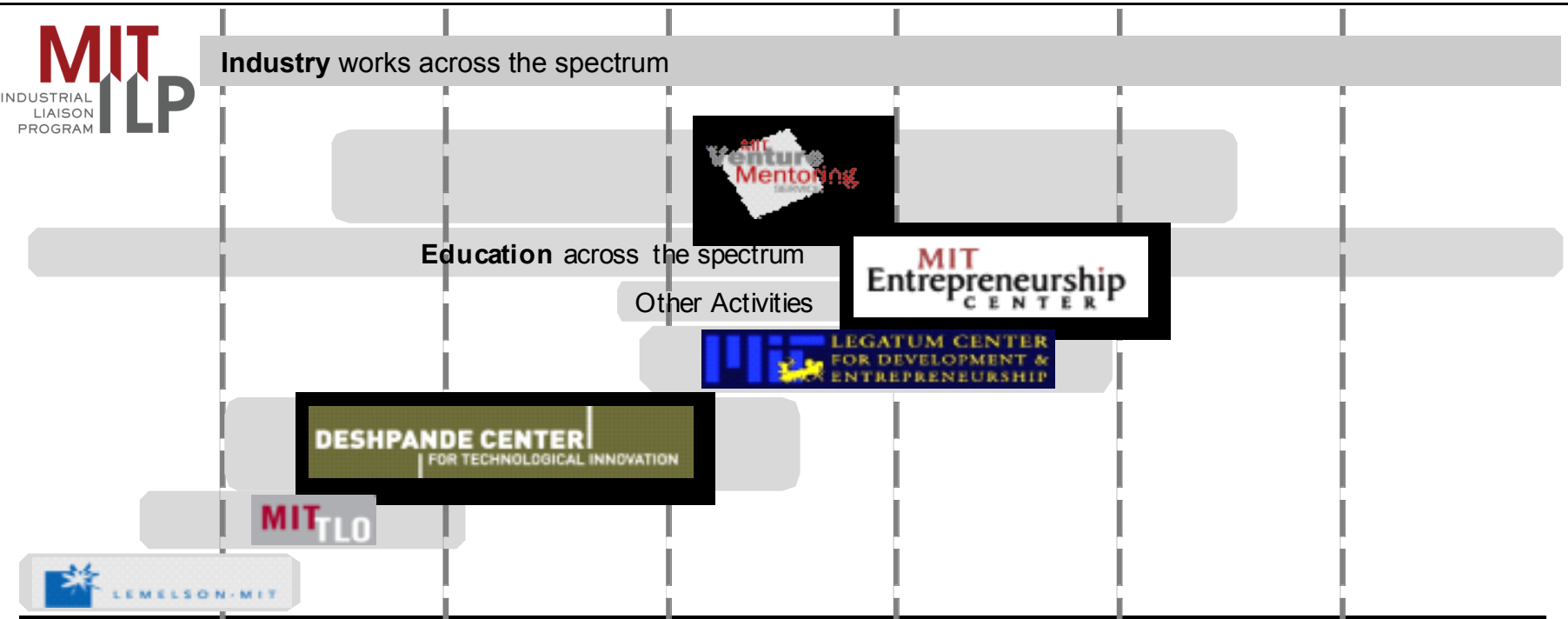
Mechanisms for University Technology Transfer

- Publication
- Collaborative research with industry
  - *Include people transfers*
- Faculty consulting
- Graduating students become employees
- Licensing of intellectual property (IP) arising from research
  - *Primary objective is products for the public and economic development for the society*

Much more then licensing

MIT Support System: A Innovation Cycle Perspective



Stage 1 Inspiration / Invention / Idea Generation

Stage 2 Technology Development / Idea Refinement to Practice

Stage 3 Commer-cialization Planning

Stage 4 Development of Business Plan

Stage 5 Real Company Formation (e.g. first customer, team, network)

Stage 6 Early Stage Growth

Stage 7 High-Growth

Outreach: MIT Office of Corporate Relations

- Serves:
  - *MIT leadership and faculty*
  - *Industry member partners (ILP)*
- Professional program and staff (45 people):
  - *Liaison Officers (20)*
  - *Conference management and marketing*
  - *Research and publications*
  - *Website and IT*
  - *Management processes, CRM*
- Self-funded business model:
  - *ILP fee base*
  - *Distribution of incentives and profits to MIT community*

Industry creates a strategic relationship

Contracting: MIT Office of Sponsored Programs

- Serves:
  - *MIT leadership and faculty*
  - *All external parties, public and private*
- Professional staff (55 people):
  - *Contracts Officers (25)*
  - *Information, data and cost analysis*
  - *Training and communications*
  - *Website and IT*
- Legal services is separate:
  - *Internal, MIT Office of General Counsel (4)*
  - *External*
- Mission:
  - *Administer all stages of research related funding and contracting with the MIT community and funding sources*

Licensing: MIT Technology Licensing Office

- Serves:
  - *MIT leadership and faculty*
  - *All external parties, public and private*
- Professional staff (35 people):
  - *Licensing Officers (15)*
  - *Patent administration and maintenance*
  - *Information and financial analysis and management*
  - *Website and IT*
- Mission:
  - *Manage all aspects and stages of MIT intellectual property*
  - *Facilitate the transfer of MIT research results into society via technology licensing*
- Strategy is “Volume”:
  - *Maximize the number of technologies, patents, and licenses (rather than pick winners)*

Licensing: MIT Technology Licensing Office

- Patent filing and administration:
  - *Assess commercial potential with inventors*
  - *Strong and broad patent filing*
  - *Protect and defend*
- License for impact:
  - *Understand licensee potential and plans*
  - *Balance MIT and licensee interests*
  - *Focus on impact vs. income*
  - *Maintain legal and academic integrity*
- License maintenance:
  - *Monitor licensee performance*
  - *Support licensee efforts to attract investment*
  - *Evolve, amend agreements as appropriate*
- Support for start up companies:
  - *Provide advise for licensing options*
  - *Provide networking with investors and entrepreneurs*

U.S. University/MIT Policy

- University owns the patent or copyright:
  - *Government funded research (Bayh-Dole Act)*
  - *Industry sponsored research*
  - *Significant use of university facilities*
- Industrial sponsor license rights:
  - *Non-exclusive, royalty-free, pays patent costs*
  - *Limited term exclusive, royalty-bearing, pays patent costs*
- If government sponsored, notify sponsor of invention disclosure and university must decide if it will file a patent application within two years:

  If "yes", government gets a royalty-free, government-purposes license

  If "no", M.I.T. waives its ownership right to the government
- Royalty distribution (after expenses):
  - *1/3 inventors*
  - *2/3 inventor's department and university general fu*

Elements of the License Agreement

- Definitions, especially field of use:
  - *Example: "…automotive safety applications related to occupant sensing."*
- Grant of rights:
  - *To make, have made, use, offer to sell, sell, and import*
  - *To sublicense*
- Retained rights:
  - *For research, teaching and educational purposes by the university and other non-profits*
  - *For government (if government sponsored)*
  - *For industrial sponsor (if industrially sponsored)*
- Exclusivity:
  - *For specific field of use, if appropriate*
  - *Limited term (sometimes)*

Elements of the License Agreement (continued)

- Diligence:
  - *Business plan*
  - *Obtain investment capitalization*
  - *Fund research (internal or at the university)*
  - *Perform against product development plan*
  - *Working model by defined date*
  - *Cumulative product sales (units and/or $$) by defined date*
- ***Failure to perform as specified may result in loss of license!***
- Royalties:
  - *License issue fee*
  - *Equity (in a startup)*
  - *License maintenance fee, creditable to royalties*
  - *Royalty on product sales, generally a % of sales*
  - *Share of sublicense income*
- Patent cost reimbursement

License Valuation Considerations

- Embryonic technology
- Large risk to company
- Difficult to convince company to invest
- IP is essential
- Exclusivity

License Valuation Perspectives

University: accurate valuation ***not*** very important

- Minimal investment (patent costs)
- If licensed at all, university will recover patent costs
- License issue fee provides early return on investment
- Modest royalty provides handsome reward if commercially successful

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Industry: accurate valuation ***is*** very important

- Patent cost plus license issue fees
- Large research and product development cost
- Market and sales expense
- Patent may not issue or be substantially weaker
- Competing products
- Perceived market demand may erode

Summary

- The research university has the ***role*** to create new knowledge, and the ***responsibility*** to disseminate it [through technology transfer] to benefit society:
  - *This is fully consistent with the academic mission of the university*
- Effective technology transfer by academia [to industry] has the characteristics:
  - *A university culture for collaboration [with industry]*
  - *A skilled, professional staff that manages IP and licensing operations*
  - *The philosophy and objective to maximize the **volume** of technology transfer, rather than [licensing] revenue*
- Important [societal] prerequisites include:
  - *Legal and policy frameworks [e.g., Bayh-Dole in U.S.]*
  - *Respect for the academic mission of the university[by industry]*

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Thank you

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