Translational Research —
From Laboratory to Marketplace: University of Houston’s Strategy

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University of Houston System
Division of Research Functions

- Strategic investment & Fostering multidisciplinary research
- Securing and managing external grants and contracts
- Economic development through translational research

Structures

- Pre-Award
- Post-Award
- Compliance
- Animal Care
- Technology Commercialization
- Centers and Institutes
Productivity at a Glance FY 2011

1,386 proposal submitted
478 awards managed
482 IRB protocol reviewed
49 IACUC protocol reviewed

47 invention disclosed
29 provisional patents filed
25 utility patents filed
141 active U.S. patents issued
42 active licenses
15 active startups
16 revenue sources

Inventors (over $100,000)
Harold Kohn, Diana Chow, Alexandre Freundlich,
Paul Chu, Venkat Selvamanickam
Ever-expanding Faculty Roles

HEART OF ACADEMIC INSTITUTIONS

CREATOR OF:
- New knowledge
- New technology
- Tomorrow's Scholars
- New world

THE CAPITAL OF KNOWLEDGE-BASED ECONOMY
The University: An Economic Engine!

- Prepare highly skilled and educated citizens
- Create new knowledge (understanding, ideas, innovation)
- Create jobs
  - Technologies
  - Processes
  - Products
- Contribute to economic growth and global competitiveness

Source: Part from ASTRA
Major Functions: Technology Transfer and Economic Development

- Manage Patent Portfolio
- License Intellectual Property
- Start-up companies
- Liaison with regional economic planning and development organization

In the circular diagram:
- Research
- Licensing
- Disclosure
- Marketing
- IP Protection
Stages of Technology Transfer

1. **Imagining**
   - the Commercial Opportunity
   - Mobilizing Resources for Incubating

2. **Incubating**
   - to Define Commercial Potential
   - Mobilizing Resources for Demonstrating

3. **Demonstrating**
   - Products & Processes in Commercial Context
   - Mobilizing Resources for Market Entry

4. **Market Entry**
   - to Prove Commercial Viability
   - Mobilizing Resources for Growth & Sustainability

5. **Growth & Sustainability**
   - to Generate Financial Returns

Source: The Ohio Third Frontier Program
LETTER TO SECRETARY Locke

RECOMMENDATIONS TO FACILITATE UNIVERSITY-BASED TECHNOLOGY COMMERCIALIZATION

- Expand efforts to encourage, recognize and reward faculty interest in research commercialization by providing incentives and encouraging engagements with industry, entrepreneurs and venture partners.
- Create or expand programs that connect faculty and students to the resources they need: industry partners, entrepreneurial mentors, translational research and "proof-of-concept" funds, accelerator facilities and venture creation services.
- Encourage streamlining and reduction in reporting and compliance requirements, which would allow faculty to increase time spent on proposal writing and research.
- Work to further reduce barriers to technology transfer to accelerate the rate at which ideas move from the lab to the marketplace. Central to this effort will be to ensure that our technology transfer offices are adequately staffed with skilled professionals who are provided with the resources to effectively and efficiently perform their jobs.
- Publicly promote the importance of technology transfer, to encourage participation by our researchers and encourage engagements with potential partners.
- Establish policies to encourage technology transfer offices to strive to maximize the societal and economic development benefits of discoveries, rather than maximizing revenues.

Letter signed by 135 Presidents/Chancellors, including Chancellor Khator.
Re-engineer Tech Transfer Operations

- Invest to create prototypes
  (valley of death!)
- Expedite transfer of laboratory research to market place
  (support faculty entrepreneurs, develop partnership with industries, create advisory board, explore IP assignment to research park)
- Pursue aggressive licensing agenda
  (adopt sound marketing strategies)
- Expand IP portfolios
  (hold regular workshops, seminars by successful faculty role models, rewards)
- Attract venture capitals for new spin-off companies
  (Organize tech shows, invite venture capitalists, publicize success stories etc.)
- Enhance public-private partnership in pursuing marketable research projects
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Conflicting Views: Differences in Motives, Processes and Working Practices

Industry Reasons for Participating in Partnerships:
- Access to new research
- Development of new products
- Maintaining a relationship with the university
- Obtaining new patents
- Solving technical problems
- Viewed as less important: Improving products and recruiting students

University Reasons:
- Obtaining funding for research assistants, lab equipment and research
- Obtaining insights into their research by field testing theory and empirical research
- Viewed as less important: Acquiring practical knowledge useful for teaching, student internships and job placement, and obtaining patentable inventions and business opportunities.

Technology Commercialization Ecosystem

- Technology Foundation & Incubator
- Valuation & Market Analysis
- Proceedings
- IP Assignment
- Proceeds
- Technology-Specific Teams
- Market Entry
  - Company Formation
- License Out
- Development Work
  - Faculty’s Lab

University of Houston
Expected Benefits

- Increased Research Expenditure
- Increased Royalty Revenue
- Increased Postdoctoral Appointments
- Increased Translational Research
- Recruitment of Entrepreneurial Faculty
- Creation of Jobs
Ten Measures for Top 50 U.S. Universities

1. Total Research Expenditures
2. Federal Research Expenditures
3. National Academy Membership
4. Faculty Awards
5. Doctorates Awarded
6. Postdoctoral Appointees
7. National Merit and Achievement Scholars
8. Endowment Assets
9. Annual Giving
10. SAT Scores

Source: The Center: The Top American Research Universities
Thank you.