The Challenges of Creating New Ventures to Commercialize University Technologies

Presentation to the Committee on the Management of University Intellectual Property
The National Academies

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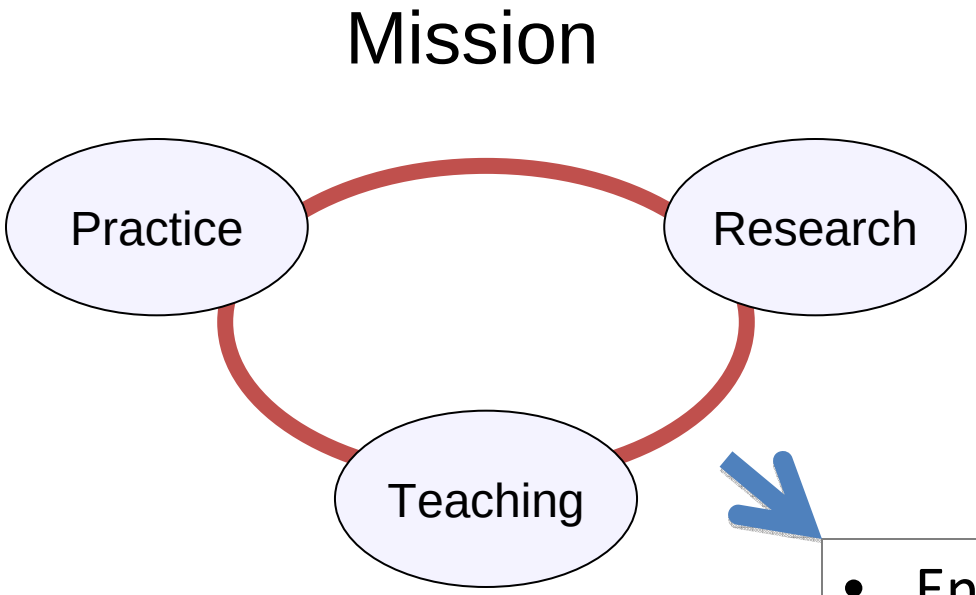
Personal Background

- 5 years in the humanities
- 13 years in IBM – networking and software products
- 10 years in 3 venture backed companies: data networking, software, medical device
- 3 years in business school: Center for Entrepreneurship & Innovation

Center's Role



- Engagement with university (and other) spin-outs
- Students / courses
- Practitioner & academic advising
- Plans & possibly some members of team

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Some Recent Projects

Became Companies	Contribution
• Affinergy: Orhopedic device	Plan & student
• Advanced Liquid Logic: Microfluidics	Plan
• Proventys: Peronalized medicine	Plan
• Integrated Oncology Solutions: Therapeutic	Plan
• Precision Bioscience: Gene manipulation	Team & plan
• Oncoscope: Optical imaging	Plan
• GrassRoots: Crop engineering	Plan, student & advisers
Did not become companies	
• CRIS: IT for psychiatry	Plan
• Orthogen: Tissue engineering	Plan & interested students
• EyeMaster: IT for opthamolgy	Plan
• BlueDocs: Educational software	Plan & interested students
• Adeia: Nano technologyy	Plan & interested students

What Is Needed?

Given an invention: science or technology

What is required to create a company?

- Business idea
- People
- (Money)

What are the challenges?

Can a university based program be created to supply the required pieces?

Business Idea

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- What is the business that could be constructed around a technology?
  - Requires a market orientation: What is the problem or need?
  - What else is required – other technologies?
- What is a reasonable strategy?
  - Business model
  - Product /service
- Addressing these questions is rarely within the skill set of the inventors.

People: Different Roles

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- Business innovators / entrepreneurs
  - See the possibilities in a technology
  - Supply the initial driving energy
- Management
  - Skills and experience to launch a business and secure investment
- Advisors
  - E.g., legal, financial, marketing, managerial, industry contacts, …)
  - Skills and experience are almost always required before the venture can afford to hire them.
- Inventor usually best as scientific advisor

Where Are the People?

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- The people needed rarely work for the university, nor would they be inclined to
- In small numbers, they can be attracted through entrepreneurship programs
- To have a reasonable hit rate, there must be
  - A sufficiently large community around the university
  - Frequent interactions to allow random connections

Money?

Common wisdom:

- Herd mentality among investors
- Disciplined within their parameters

If you believe investors are competent to evaluate opportunities,

Then invention + business idea + people will attract investment

& it will come to the opportunity

So, money and proximity to money are not constraints

A Possible Exception

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- Time lines and low probability of success have dried up early stage venture capital investing in health care related ventures (& other areas?)
- This is the stage most relevant to university research
- NIH has funded translational research, but a funding gap remains
- One model: Duke Translational Research Ventures
- Challenges:
  - Politics in investing decisions
  - Bureaucracy rather than entrepreneurship
  - And many more

How many Good Ideas Are There?

- The four ingredients:
  - Invention
  - Business ideas (innovation)
  - People
  - Money
- Where is the constraint to the number of university spin-outs??
- One man's opinion: business innovation is the gating factor

Summary

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- To become a business, an invention requires a business idea and people
- Creating the business idea does not fall naturally within the traditional university organization
- A sufficiently large, engaged community is required
- University entrepreneurship programs can play a useful role:
  - Great teaching vehicle
  - Excellent way to connect with the business community