WPI Intellectual Property
A day in the life of the tech transfer office

Todd Keiller
Director, Intellectual Property and Innovation
Who does research?

- Federal and state governments
  - Defense, public health, NASA.....
  - Model of frugality, productivity, focus, transparency

- Universities and research labs
  - Academic motivations
  - Tend toward “R” rather than “D”

- Large and small companies
  - Commercial motivations
  - Short term mindset
  - Favors “D” over “R”
1980—mired in “malaise”

- ‘Stagflation’ and America’s “Malaise”
  - Double-digit inflation and double-digit unemployment
- Dire predictions
  - US would lose its lead in high technology to Japan and Germany
- Universities performed R&D, but few inventions commercialized
- U.S. government held 28,000 patents, fewer than 5 percent were out-licensed to companies*
- Benefit to taxpayers from US funded research?

What would you do?

- Create a new government bureaucracy to commercialize university created inventions?
- Give university created inventions to U.S. corporations to let them commercialize?
- Put the inventions into the public domain?
- Shift the burden back to universities?
- Other ideas?
The Choice: Bayh-Dole Act

- Co-sponsored by Senators Birch Bayh (D) of Indiana and Robert Dole (R) of Kansas
- Philosophy: The public benefits from federally funded research when products and services are brought to the market
Highlights of Bayh-Dole

- Universities, non-profits and small businesses may elect to retain title to innovations developed under federally-funded research.
- Universities are expected to file patents on inventions they elect to own.
- Universities are expected to give licensing preference to small businesses.
- *Universities must share revenue it receives with inventor(s).*
- The government retains a non-exclusive license to practice the patent throughout the world.
- The government retains march-in rights.
Did it work?

- According to the Association of University Technology Managers (AUTM), in fiscal year 2012
  - 36.8 billion of net product sales were generated
  - Startup companies started by 70 academic institutions employed 15,741 full-time employees
  - 591 new products originating from university research were introduced to the marketplace
- Since enactment, more than 4,000 new companies have formed around university research results
Mission: Accelerate and facilitate commercialization of ideas from WPI research in concert with the overall mission of WPI
• Vision: To be a premier small technology transfer office that exceeds expectations in licensing technologies. The office will be nimble and responsive while being fiscally and legally responsible.
The Process

- Grant generates data from hypothesis and then “ah hah moment”
- Disclosure to tech transfer before public disclosure
- Patent landscape/prior art?
- Provisional Patent
Obligations with Intellectual Property

- Invent without WPI resources
- Student invents as a MQP or with WPI resources (up to 10% to WPI)
- Invent as a faculty member (50% to faculty member)
Disclosure process

- See me!  tkeiller@wpi.edu
- Invention disclosure form:  
  https://www.wpi.edu/offices/ipi/forms.html
- What is patentable?
- Who are the inventors
- Am I an inventor or entrepreneur (or both)
What is patentable

- Novel – must be new, not published *
- Non-Obvious, i.e., unexpected results
- Patent disclosure – describe invention
- Utility- must have a distinct practical use
Prior Art search

- http://www.patentsrealfast.com/feedback
Patent process

- Provisional patent < $1k
- Utility patent $8-10k
- PCT -$2-3k
- National Phase: $40k to get started
- All said and done: $25-30k for US patent
- $100-300k for world wide protection
Who are the inventors

- Basic rule: If you contributed to one claim, you are an inventor
- Don’t have to split proceeds equally
The Process

- Collect market targets
  - Through inventor
  - Through market research
  - Through prior contacts
  - Marketing oriented sales piece to targets
- Good example: [www.releafblade.com](http://www.releafblade.com)
Market evaluation

- [www.inventionevaluator.com](http://www.inventionevaluator.com)

- Patent is useless without a commercial pathway
Marketing

- New portals to match industry with academia:
  - www.collectiveIP.com
The Entrepreneur’s Perspective

- You have an invention, technology, innovation, idea...
- Can it be commercialized?
- If so, what is the ‘best’ path
  - Best for the public?
  - Best for investors?
  - Best for you?
Moving to a commercial outcome

- Really two pathways
  - Straight license
  - Startup
Straight License

- Diligence is a key component
- Publication
- Indemnity
Licensing to existing company

- Fit with current R+D plan?
- Often find the technology via inventors publication, student, conference
- Tech transfer office marketing
‘Failure to plan is a plan for failure’
- Planning a business ≠ writing a business plan
- First understand why you undertake any activity
- Discipline
- Expert help
Why Start-Ups Fail

*SBA Top Ten List

- 78% lack rigorous business plan
- 73% are overly optimistic on sales, capital
- 70% lack a key skill, expertise
- 63% simply lack business skills/experience
- 82% lack cash flow management skills
- 79% launch with idea but no capital
- 77% lack a realistic revenue model
- 64% lack a realistic marketing plan
- 55% don’t understand their competition
- 47% rely too much on one customer
Could the idea work?

- Technology risk (it has to work!)
- Regulatory risk
- Business risk (can it make a profit?)
- Financing risk
- Market risk (competition)
- Business environment risk (external trends)
- Management risk (who can carry the ball?)
Financing a start up

- Appreciating the value and limits of capital
- Milestones and inflection points
- Risk and valuation
- Investing before a realistic valuation is possible
- SBIRs
- FFF
- Angel Funding
- Venture Capital
- Strategic Money
Revenue Models

- How will you make money?
- Profits from direct sale of products or services?
- Profits from sublicenses?
  - License fees, milestone payments, royalties
- Compare key requirements
  - Time, Capital, Skills, Competition
- Calculate returns to the Entrepreneur
Liquidity for shareholders

- Distributions of net profits?
- IPO?
- Sale of business?
- Answers may guide
  - The form of entity (LLC, C Corp)
  - The financing strategy
- Why did you go into this business?
- Who are you working for?
Thank you!

- tkeiller@wpi.edu
- 508-831-4907