The Inventor’s Role: Understanding the Technology Transfer Process

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Topics

• University Technology Transfer – What & Why?
• CTL Process Overview
• Understanding Your Role as an Inventor
University Technology Transfer – What & Why?

• Process by which a discovery is brought to the marketplace for the benefit of the general public

• The Center for Technology Licensing at Cornell University is the office engaged in technology transfer on behalf of Cornell University

• Almost every University that receives federal research funding has a technology transfer office to assist faculty and staff

  • University priorities
  • Bayh-Dole Act - 1980
Enter CTL - www.ctl.cornell.edu
Cornell Policies and Priorities

Cornell claims ownership of its employee’s inventions and most other forms of intellectual property and seeks to develop them:

- for the public good – NY State is first priority
- to get a reasonable return – licensing

As with other universities, licensing is a tool to:

- recruit and retain best faculty and students
- increase research sponsorship
- create closer ties to industry

http://www.ctl.cornell.edu/inventors/cornell-policies.php
Bayh-Dole Act

Commercialization of US-funded Research in Late 1970s

• U.S. government policy claimed title to inventions made with federal funding
  – Had accumulated 28,000 patents;
  – ~5% of those patents were commercially licensed;
  – Lots of red tape, and anti-corruption policy of licensing only nonexclusively

• On occasion, had allowed funding recipient to retain title
  – ~25% percent of those had been licensed

• Bayh-Dole was intended to increase trend
  – IP developed by a university using federal funding is owned by the university; if the university will try to commercialize
Bayh-Dole Act

• Proposal arose in late 1970’s in response to stagflation, development of the Rust Belt, and lack of US competitiveness/innovation

  – Senators Bayh and Dole looked at fruits of government funding of basic research, because that funding had always been intended to fuel US economy

  – Bayh and Dole asked – where are the new technologies, why are we behind?
Bayh-Dole Act Results

The Economist (2002):

*Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh–Dole act of 1980*

- 1996-2013: University licensing increased U.S. gross industry output by $1.1 trillion
- Since 1980
  - 3.8 million new jobs created
  - almost 5,000 start-up companies
- In 2014 alone:
  - 914 new companies
  - 965 new products
- Model for other countries worldwide
- Not without controversy!
Bayh-Dole Act Requirements

1. Must try to commercialize
2. Preference for licenses to US companies;
3. Preference for small business over large
4. US manufacturing requirements
5. Distribution of $ to inventors

NOTE -- University must also:
1. Grant non-exclusive rights to US Gov’t
2. Allow “march-in” rights (never used)

By understanding Bayh-Dole, you understand what drives CTL
Cornell’s Technology Transfer Process

Tangible (potential) benefits to working with CTL:

- No financial risk to you
- 1/3 of any net revenues generated by CTL goes to the inventor(s)
- Commercial and/or career perspective
Understanding Your Role as an Inventor
## Intellectual Property

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<tr>
<th>Property Right</th>
<th>Development Step(s)</th>
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<tr>
<td>Trade Secrets/Know How</td>
<td>Mentally Develop Secret</td>
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<tr>
<td>Copyright</td>
<td>Mentally develop “Expression”</td>
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<td></td>
<td>Render Expression - Tangible Medium</td>
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<tr>
<td>Trademark</td>
<td>Select Distinctive Term will use as Mark</td>
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<td>Use Term in Commerce</td>
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<td>Tangible Research Materials</td>
<td>Mentally Develop Secret</td>
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<td>Patent</td>
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<td></td>
<td>File/Prosecute Application</td>
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<td>Obtain Govt Grant</td>
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Patents - Understanding Your Role

Keys to better patents:

• What distinguishes your invention from the prior art – clear understanding is critical

• Detailed description of your invention & documentation (invention disclosure form)

• Proactive assistance during patent prosecution (3-5 yr period)

• Variations, modifications and alternatives
  • Review your invention as if you were reading someone else’s
  • How would you design around your own invention? (Different embodiments)

Disclose early and often & stay in communication with CTL
Patents - Primer

Keys Issues to be aware of:

• **Invention vs. innovation** – a patentable invention is defined by law and must meet 3 criteria
  
  • **Utility** (35 USC 101) – is your innovation useful
  
  • **Novelty** (35 USC 102) – not already in the public domain
  
  • **Nonobviousness** (35 USC 103) – must be more than an obvious extension or combination of existing technology/know-how

• **Inventorship vs. Authorship** – both are defined under US law
  
  • Inventor: someone who **conceived** of the invention; issue is assessed by patent counsel
  
  • Author: pertains to copyrights – creator of the original expression; issue may be assessed by counsel
  
  • An ‘author’ on a scientific publication is not necessarily an inventor
Keys Issues to be aware of:

- **Prior Art** – anything known publicly anywhere before the date your patent was filed
  - Can and will be used against your patent application by the Patent Examiner
  - Can include, among other things, journal papers, abstracts/posters, web pages, emails or oral presentations (seminars, conferences)

- Publicly disclosing your invention before filing a patent application can limit where or if we can file at all
  - Some countries have grace periods but most do not (eg. US still allows up to 12 months from first disclosure to file an application by the inventor)
  - EU, China & most other countries have **absolute novelty** (ie. no grace period – once in the public domain, no longer patentable)
    - May impact commercial value of the invention
Patents – Primer cont’d...

Keys Issues to be aware of:

• During prosecution ‘Office Actions’ will be received – invention will likely be deemed not patentable under one or more of the 3 criteria for patentability
  • Need for inventor’s technical expertise is usually critical to overcome rejections
  • Do not discard or dismiss negative data

• Patents exclude others from being able to practice your invention (a negative right) and expires 20 years from the date of filing a utility or PCT application

• Be aware of length of time & cost to issuance: 3-5 years; >$20K for US patent alone
If CTL proceeds with filing a patent application on your disclosure we will in most cases start by filing a **provisional application**

- Inexpensive application provides for one year period to decide to convert to a full (utility) or PCT application (PCT application allows filing in most major countries in the world)
- Allows for 12 additional months of patent pending status (makes life of patent 21 years)
- If we do not convert, application is abandoned and it will never see the light of day
  - If we convert to a utility or PCT application, the application will be published and in the public domain (even if later abandoned)
Patents – Primer cont’d…

**March 16, 2013**

New America Invents Act (AIA) became effective

US changed from ‘first-to-invent’ to ‘first-inventor-to file’

Greater need to file early *but...what we file must be enabling*

**Take home message:** *Stay connected to your tech transfer office*
Market Assessment & Strategy Development

• Is not scientific peer review
  – We don’t scrutinize your science.
• We assess technologies through a different lens

• From discovery to invention to product...
  – Turn Cornell ideas into products to serve the public good

• Strategy will depend on various factors, including
  – Development stage
  – Market need
  – Status of competing technologies
  – Patent eligibility and feasibility for enforcement
  – Financial risk vs. potential return
  – Availability of potential industry partners / licensees
Market Assessment & Strategy Development

++ The Inventor’s Role ++

• What problem(s) does your invention solve?
  – Why should anyone in industry care?
  – What are potential commercial applications?

• Platform technology or improvement to an existing solution?

• What is the potential market size? Is there an existing market?

• Are there competing technologies?
  – On the market or under development in other labs?
  – How much better is your invention? What metrics are relevant?

• What are the next steps in developing the technology?
  – Will you continue working in this area?
  – Are you willing and able to do more experiments in the lab?
  – May make the invention more attractive to industry.

• Startup vs. licensing to established company?

• What businesses may be good industry partners to commercialize your invention?
The Inventor’s Role in Marketing

• CTL works with inventors to:
  – Generate marketing materials (Value Proposition!)
  – Identify target companies, entrepreneurs, investors

• Web postings, cold calls, email campaigns

• Network, network, network!

• **Inventors are key to marketing success**
  – Anecdotal evidence: 80% of university licensing deals begin with the researcher's existing industry relationships (although CTL’s hit rate has been better)
  – Make industry contacts at conferences and let CTL know about them
  – You are not “just” a scientist at the conference; you are also “selling” your invention

• CTL Technology Showcase Events
  – Cornell Technology Venture Forum™ (CTVF) – October
  – New Business & Emerging Technology Showcase™ – April

• Industry Advisory Group (IAG)
  – “Friends of Cornell” with various backgrounds and experiences working in industry
  – provide recommendations, information, referrals