Intellectual Property & Technology Commercialization Basics

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Disclaimer

- I am not a lawyer
What is Intellectual Property?

Intellectual Property = Products of the mind
Inventions or ideas
Intangible assets

Intellectual Property Rights = Legal rights
associated with IP

Intellectual Property can be protected by:
Patents
Copyrights
Trade secrets
Trademarks
Intellectual Property Rights

Intellectual Property Rights are a negative right that prevent others from practicing an invention by unauthorized manufacture, copy, use or sale of the invention for a defined period of time.

As of June 1995, an issued US patent affords the owner a 20 year monopoly from filing date over the invention which is claimed.
Why is IP Important?

An analysis by Coopers & Lybrand found that 2/3 of the market value of publicly traded companies was attributed to intangible assets.

In the pharmaceutical industry drugs under patent protection earn a 90% gross margin versus 50% for generic products.

For start up companies – having an IP position is an important consideration in raising capital.

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Types of IP

- Patents – protects the concepts and ideas of function and design
- Copyrights – protects written expression and the communication of ideas reduced to tangible form
- Trademarks – protects identifying symbols
- Trade Secrets – protects proprietary material which if kept secret provides a commercial advantage to the owner
Patent Basics

- Protection for processes, machines, items of manufacture, compositions of matter
- Item must be new, useful and non-obvious
- Invention must be distinguishable over prior art
- US rights are granted by the Federal Government through the US patent and Trademark Office
- Foreign rights must be obtained separately by filing in the appropriate foreign patent office
- As of June 1995, a US patent provides a 20 year monopoly from filing date on the invention which is claimed in the patent
- Ongoing interaction between the inventor and the prosecuting attorney is key in drafting patent claims
Inventorship

- Determining the inventors on a patent is a matter of law.

- Having the inventorship wrong can invalidate a patent.

- Inventors are not the same as co-authors on a paper, students in the lab, supervisors or thesis advisors.

- An analysis of the claims of the patent is used to determine inventorship.
Patent Filing Timing Requirements

- US filings must take place within 1 year from public disclosure or offer for sale

- Foreign filing must take place prior to public disclosure or offer for sale

- Public disclosure can involve web postings, publications, discussions with a few as one person, presentations at meetings
Lab Notebooks

- Good record keeping is essential for effective patenting since it serves to document critical dates and inventorship.

- Lab Notebooks basics:
  - Use a bound notebook
  - Maintain an on-going record of activity
  - Have material signed and dated
  - Have a colleague familiar with the work but not involved with it sign and witness weekly
  - Do not erase or remove pages. Cross out errors

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Copyrights

- Protection of an original work of authorship fixed in any tangible medium – but not the idea

- Protects against copying the work not the creation of similar or identical works

- Can be used to protect:
  - Literary works, dramatic works, choreographic works, pictures, graphics, sculptures, movies, sound recordings, computer programs and screen displays
Copyright Registration

- Federal rights automatic upon creation

- Can include a copyright notice on material
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- Can file an application with the US Copyright Office
Trademarks

- A word, symbol, name device or combination used to identify goods or services

- Federal Rights vest upon registration

- Marks should be distinctive
Trade Secrets

- Information that is not generally known or discernable and if kept secret provides an economic advantage to its owner.

- Trade secrets can protect financial, business, economic or engineering information.

- Examples include computer software distributed in object code only, recipes or formulas, business plans, customer lists.
Trade Secret Protection

- Physical Security

- Internal Procedures:
  - Use of Non-Disclosure Agreements
  - Limited Access to Material
  - Need to Know
IP Protection Example

Patent protection can be obtained on a new medical device.

The user manual and associated software can be copyrighted

The name of the device and or graphics can be trademarked
University Mission Elements

A Public Research University

Government

University

Industry

Instruction
Research
Public Service
Economic Development

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IP in the University Context

IP and Tech Transfer can foster activities that support the fundamental academic mission of NJIT by:

- Recognizing/rewarding inventors
- Developing closer ties with industry
- Promoting economic growth
- Commercializing research
- Generating income for research & education
Office of Technology Development - Mission

To promote the commercialization of NJIT research results through:
- technology licensing and
- sponsored research activities
  in a manner consistent with the research, teaching and public policy objectives of the university and in compliance with government regulations

To provide guidance to faculty/staff and students on IP matters

To provide an additional source of funds to support research and education at NJIT

To recognize and reward the contributions of individual inventors through royalty sharing

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Office of Technology Development (OTD)

OTD is responsible for managing the IP developed by NJIT faculty, staff and students and/or which utilized NJIT resources, time and facilities or services during their conception or development.

Key functions include the identification, protection, transfer and commercialization of IP assets.

http://www.njit.edu/research/intellectual_property.php

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OTD Involvement

Activities

Research

• Transfer of materials agreements
• Negotiating research agreements
• Faculty assistance on IP issues

Technology Transfer

Research Continuum

Ongoing IP administration for existing contracts, royalty collection and distributions

• Assist in identifying/evaluating new disclosures
• Managing confidentiality and non-disclosures
• Initial patent applications and copyrights

• Identifying Licensees
• Negotiating license agreements

• Managing new company creation
• Evaluating new company creation

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IP at the University: The Historical Backdrop

- **1980 Bayh - Dole Act Introduces:**
  - A *fundamental change to the patent law:*
    - title to inventions made with government funding by small businesses, universities and other non-profit entities belongs to those entities, and not to the government

- Created a uniform intellectual property policy for all government agencies
Bayh-Dole Act - Obligations

- Universities must file patents on inventions they elect to own
  - Preference for small business licensees
  - Licensed products — manufactured in U.S.
  - Royalties must be a.) shared with inventor and b.) used for research and education
  - Government retains non-exclusive right
  - University reporting obligations
Invention Commercialization Model

- Research & Development
- Intellectual Property
- Prototype Development
- Product Development
- Commercialization

The process is not as linear as it is shown!!
NJIT IP Process Flow (Abbreviated):

Grants & Sponsored Research → Research Activity / Inventions → Invention Disclosure & Inventor Interview → NJIT IP Technology Commercialization Committee Review

Filing Decision:
- Yes/No
- Full / Provisional

Waive Rights to Inventor

Technology Commercialization/Marketing License/Start Up

Research Continuum
NJIT IP Policy – Invention Disclosure

- In order to preserve patent filing rights and obligations to Sponsors –
  Inventors are required to disclose all inventions to the Office of Technology Development prior to any disclosure to the public or a private entity

- This includes enabling disclosures to potential licensees, scholarly publications, colloquium, and web postings

- If necessary for evaluation of inventor record of accomplishment or student thesis/dissertation evaluation - documents may be reviewed by NJIT agents under confidentiality agreements

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Factors in Assessing a Disclosure:

- Patentability
  - Novel / Non-obvious (prior art)
  - Publication / Disclosure
  - On Sale Bar

- Commercial Viability
  - Market Size / Growth Rate
  - Competitors / Potential Licensees
  - Current or Future market

- Invention
  - Foundation or extension concept
  - Third party IP involved
  - Ease of design around / detectability

- Funding
  - Sponsor Rights
Industrial Sponsored Research

- Industrial sponsored research is a growing component of NJIT’s overall research program

- Frequently multiple sources of funds are used to support a research activity

- Working with industry can present challenges due to differing missions and culture:
  - Open Disclosure/Academic Freedom vs. Confidentiality
  - Knowledge for Knowledge’s Sake vs. Use of Knowledge for Profit

- Areas that tend to be problematic include IP rights, publications, warranties, deliverables
The Typical University Commercialization Process

**Licensing Activities**

**DISCLOSURE**
- Sponsor rights

**PRELIMINARY EVALUATION**
- Sponsor commitments
- Patentability assessment
- Commercial potential
- Tangible research products
- Invention overlap
- Strategy Considerations:
  - Exclusive/non-exclusive
  - Field of use
  - Territorial

**ELECTION PERIOD**
- If unsuccessful negotiations

**LICENSE (or OPTION) NEGOTIATION**
- Grant
- License issue fee
- Prosecution reimbursement
- Minimum royalties
- Earned royalties
- Diligence provisions
- Reporting obligations
- Problem resolution

**IDENTIFY and CONTACT POTENTIAL LICENSEES**

**If no sponsor rights**

**If unsuccessful negotiations**

**Commercialization Contract Admin.**

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Challenges in University Tech Transfer

- Stage of development is “embryonic”
- IP valuation is difficult
- Substantial further investment is required for technology and market development
- Is it a license or is it a company?
- Who will fund and manage a start up?
- Government / State funding & rights
- Exclusivity requests by licensees
Technology Transfer – The Reality

- Most inventions are NOT the BIG WINNER

- According to AUTM, in FY2001:
  131 out of 22,806 active licenses generated more than $1M in revenue
  68% of licenses executed were with start ups or small companies
  49% of all licenses executed were exclusive

- According to Stanford University
  “The University cannot count on royalties for operating expenses”
  50% of the cases produce less than $10K in income!!
Licensee Selection Factors

- Leading Edge Technology / IP Position
- Cash Position
- Technology Transfer Expertise
- Product/Market Fit
- Experience with Licensee
- Licensee
- Cultural Match
- Management Relationships
(Almost) Every Deal Is Different

- Every technology is different
  - stage of development
  - industry
- Inventor relationships are different
- Licensee relationships are different
- IP protection is different
Possible Situations

You have developed a new medical device and associated software program for measuring intraocular eye pressure and will be presenting the results at a regional seminar. Industry will be attending the meeting and you hope to have detailed discussions about possible license and/or sponsored research opportunities. You call your device the “One Touch I-Press” Monitor.

What should you be concerned about from an IP perspective??

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Making NJIT Successful at IP

• Inventor involvement is key
  • Early notification of research work
  • Include OTD in seminars / industry meetings
  • Identification of potential licensees
  • Assistance in the transfer process
  • Keep notebooks
  • Get OTD involved in sponsored research negotiations
Putting the IP Pieces Together

- Keep a Lab Notebook
- Create New IP
- Stay involved with Commercialization
- Use NDAs When Appropriate
- Comply with IP terms in Grants and Industry Sponsored Agreements

Contact Office of Technology Development with ANY Questions