



# 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



# 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



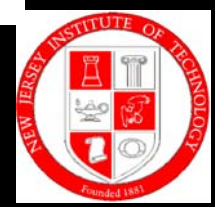
# Patent Basics

- 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



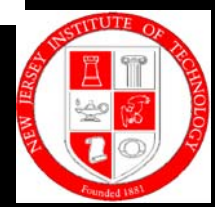
# Patent Filing Timing Requirements

- 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



# 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
  - © Judith Sheft 2003
- 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

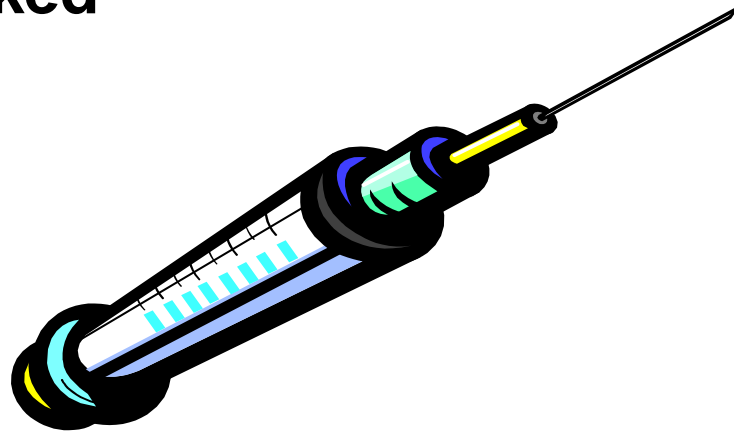


# IP Protection Example

**Patent protection can be obtained on a new medical device.**

**The user manual and associated software can be copyrighted**

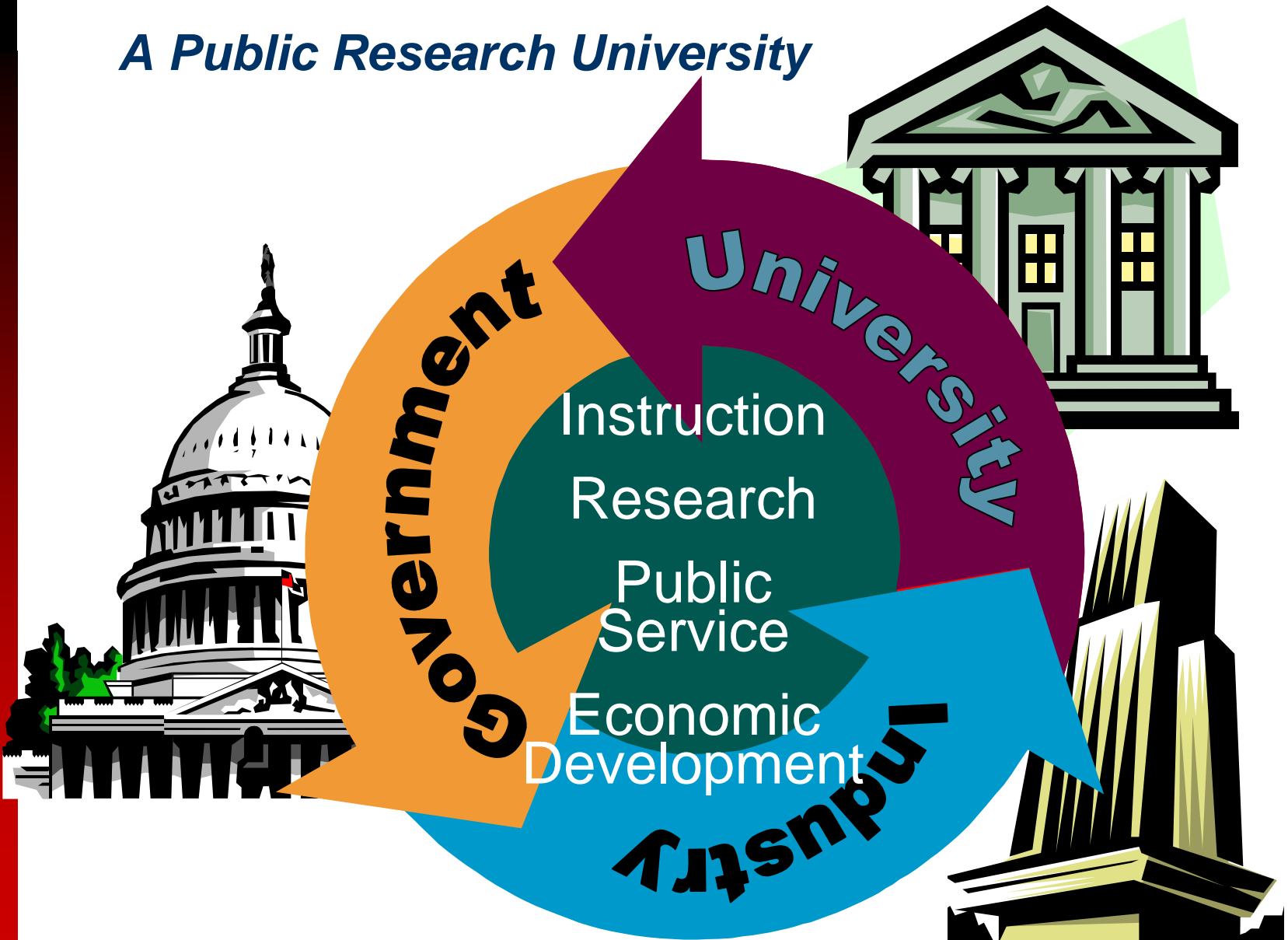
**The name of the device and or graphics can be trademarked**





# University Mission Elements

*A Public Research University*





# 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**



# 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](http://www.njit.edu/research/intellectual_property.php)**

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# OTD Involvement

## Activities

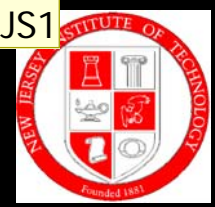
Research

Technology  
Transfer

### Research Continuum

Ongoing IP administration for existing contracts, royalty collection and distributions

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



# 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**



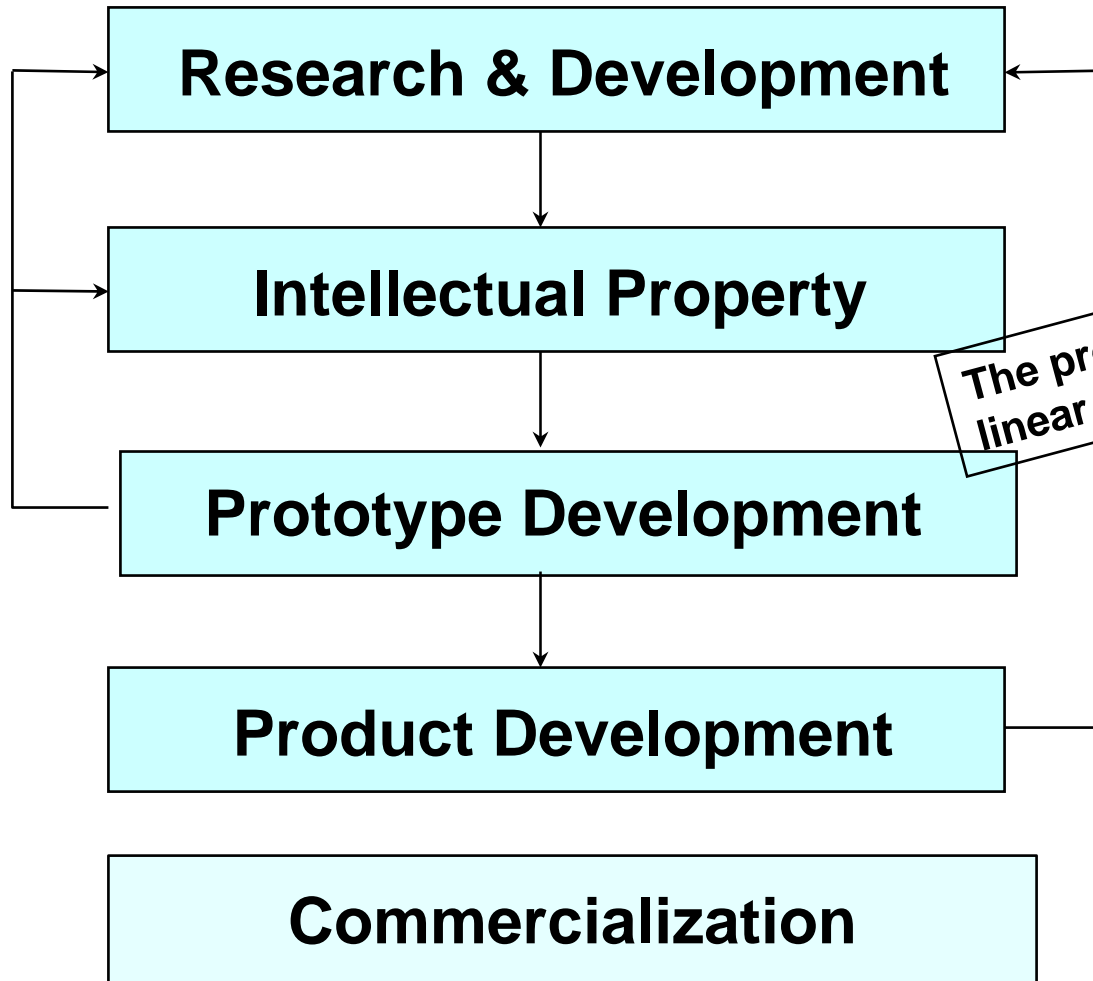


# **Bayh-Dole Act - Obligations**

- **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**



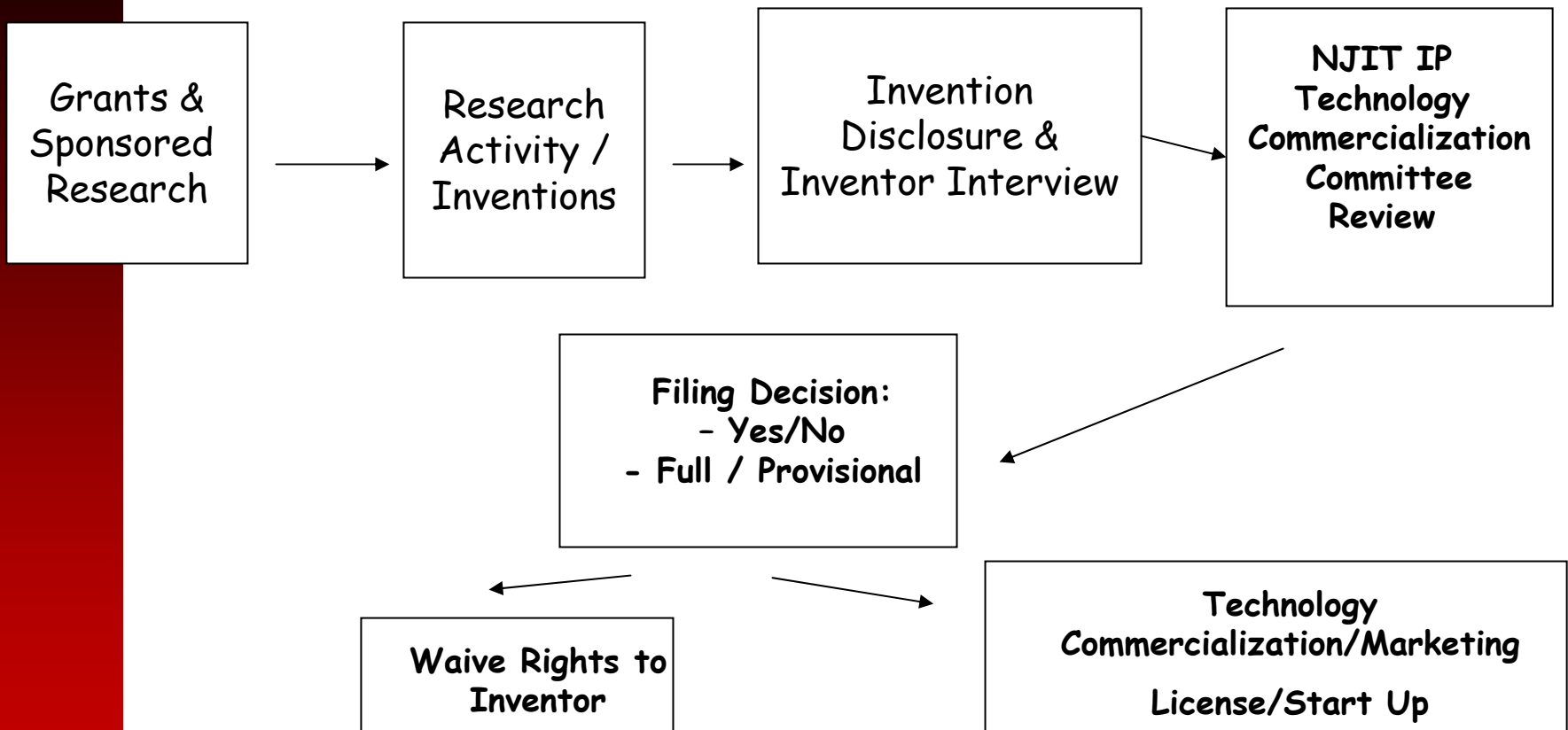
# Invention Commercialization Model



The process is not as linear as it is shown!!



# NJIT IP Process Flow ( Abbreviated):

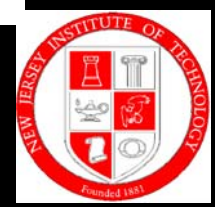


**Research Continuum**



# **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**



# 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

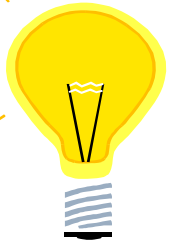


# Industrial Sponsored Research

- 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**

Sponsor declines option

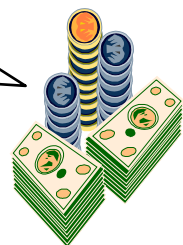
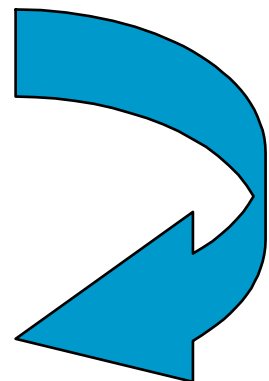
**LICENSE (or OPTION) NEGOTIATION**

Grant  
License issue fee  
Prosecution reimbursement  
Minimum royalties  
Earned royalties  
Diligence provisions  
Reporting obligations  
Problem resolution

If unsuccessful negotiations

**IDENTIFY and CONTACT POTENTIAL LICENSEES**

**Commercialization Contract Admin.**



If no sponsor rights



# 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**



# Patent / Technology Licensing

- (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??



# 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

**Contact Office of  
Technology Development  
with ANY Questions**

