Guidebook of IP/Technology Transfer 1

## Track 4

#### **Technology Transfer Managers & Directors**

## Topic 4.1.2 IP Ownership Models

#### **Ownership of IP**

## The four IP ownership models for a PSRI:

- The Inventor (i.e., "Professor's Privilege")
- The Institution
- The Sponsor of the research (Government, Company)
- Public domain (No one owns)

### IP Ownership typicaly depends on the type of IP

## The Inventor (i.e., "Professor's Privilege")

- typical model until US Bayh-Dole Act of 1990
- Increasingly the exception
- Problematic for various reasons
  - tech transfer extremely difficult
  - big hindrance to industrial partnerships
  - stymies institutional involvement in spin-offs
  - ethical issues, problems with multiple inventors
- Poor track record for technology commercialization
- Research collaborations with other PSRI made difficult

## The Institution

- standard model in US since 1980
- Also the standard in UK
- Increasingly the norm internationally
- IP management/tech transfer & commercialization is difficult IF the PSRI owns the IP.....

it's practically impossible if it doesn't own

 Standardizes IP management, tech transfer, licensing, research collaborations, start-ups, etc.

The Sponsor of the research (Government, Company)

- Tempting to provide since companies almost always expect their IP ownership comes with their R&D funding
- Almost no US or UK universities allow sponsor IP ownership
- Many non-US, non-UK universities allow sponsor IP ownership, at least in some circumstances
- Outside US and UK, many government funders expect IP ownership
- Government ownership of IP usually not conducive to tech transfer, and/or licensing & commercialization

#### Public Domain (no ownership)

- This is a very rare policy model, except for software-related inventions
- Widespread tradition to make software-related inventions "open source" (i.e., public domain)
- The open source tradition bolstered by widespread legal prohibition on patents on algorithms *per se*
- However, software-related inventions increasingly subject of patents
- Most PSRI tacitly comply with public domain inventions when they: allow inventors free-rein to publish, while not filing for a patent

## The Creator (i.e., "Professor's Privilege")

- typical model in most universities, and many PSRI
- Very long tradition of professor owning his/her educational materials (course syllabi, texts, lab notes)
- Exception when the copyright material is produced under sponsored contract work: in this case the Institution owns

## The Institution

- Typically, institution owns when it has assigned the copyrightable work to be done ("work for hire")
- Institution owns when the copyrightable material produced under a sponsored contract

## **The Sponsor**

 Varies widely between PSRI, however institutions often willing to grant copyright ownership to sponsors ("work for hire" doctrine is well established)

## **Public Domain**

- A common disposition of many copyrightable materials produced by PSRI
  - however, attribution to institution and creator almost always requested by institution

# **PSRI IP Ownership Models for** Plant Breeder's Rights **Inventor**

- In the US, PBR are handled like patentable subject matter (in fact plants are patentable in US) – institution owns
- Outside the US, some universities allow plant breeder to own
- Long tradition of plant breeders "owning" (i.e., total control) of their plant lines supports inventor ownership

# **PSRI IP Ownership Models for** Plant Breeder's Rights Institution

- In the US, PBR are handled like patentable subject matter (in fact plants are patentable in US) – institution owns
  Growing world-wide acceptance of institutional ownership
- of PBRs

## **PSRI IP Ownership Models for Plant Breeder's Rights**

#### Sponsor

• Very few, if any PSRI grant ownership in PBRs to sponsors

# **PSRI IP Ownership Models for** Plant Breeder's Rights **Public Domain**

- In the US, most PSRI continue to own the bioproperty of their plant lines, in perpetuity
- In the US, almost all PSRI commercialize plant lines using PBR, thus no public domain

#### Inventor

- This is an area of ambiguity; however when the Trade Secret is directly related to patentable IP, typically the institution owns
- "know how", related to Trade Secret, is a vague concept of knowledge that resides in a person's mind, belongs to the creator/knower; however, again an area of ambiguity

## PSRI IP Ownership Models for Trade Secrets

#### Institution

- This is an area of ambiguity; however when the Trade Secret is directly related to patentable IP, typically the institution owns
- "know how", related to Trade Secret, is a vague concept of knowledge that resides in a person's mind, belongs to the creator/knower; however, again an area of ambiguity
- PSRI IP Policy should make the ownership of Trade Secrets unambiguous

## **PSRI IP Ownership Models for Trade Secrets**

## Sponsor

- This is an area of ambiguity; however when the Trade Secret is directly related to patentable IP, typically the institution owns
- "know how", related to Trade Secret, is a vague concept of knowledge that resides in a person's mind, belongs to the creator/knower; however, again an area of ambiguity
- Sponsors frequently expect to own Trade Secrets produced with their funding; PSRI should make ownership clear in the contract
- PSRI IP Policy should make the ownership of Trade Secrets

#### **Ownership of IP**

#### The four IP ownership models for a PSRI:

- The Inventor (i.e., "Professor's Privilege")
- The Institution
- The Sponsor of the research (Government, Company)
- Public domain (No one owns)

## US and UK moved to institutional ownership from government ownership in 1980's

this now the international norm

#### Most institutions have exemptions

- Students (except if supported on grants)
- No significant use of institution's funds, resources, facilities and personnel

## **Technology Transfer Office responsible for:**

- All IP Policy implementation
- Manage Invention Disclosure process
- Relationship management with inventors
- Invention evaluation & triage
- Patent filing, prosecution, maintenance
- Other IP management
- Technology Marketing, proactive "partnering"
- License negotiation, drafting, signing
- Contract monitoring and management
- Revenue collection and distribution
- IP Policy "troubleshooting"

## **Key IP Policy Topics**

- Ownership of IP
- IP and external entities

research collaborators/partners sponsored research contracts technical services

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• IP and teaching, scholarly works

Establishing rules and procedures for capturing, managing, and transferring IP

Unambiguous IP Policy rules on ownership by institution

Inventions made in the course of <u>institutional duties</u> by <u>employees</u> or those with research or teaching <u>appointments</u>

• Publicize these Policy rules widely

faculty/staff handbook

website

seminars

Establishing rules and procedures for capturing, managing, and transferring IP

- Unambiguous IP Policy rules on ownership by institution
- Apply these rules equally,

fairly,

consistently

 Caution! Do Not create an IP Police State! (be careful with policy obligations to disclose and punishments for breach)

Establishing rules and procedures for capturing, managing, and transferring IP

- Unambiguous IP Policy rules on ownership by institution
- Employment agreements (signed, if possible)
- Invention disclosure obligations
- Effective invention disclosure system implemented by TTO
- Promote good notebook-keeping practices among researchers

Managing IP issues arising in research activity

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- Managing jointly-owned IP (joint inventorship)
- University management of company's trade secrets and confidential information
- Personnel exchanges and its effect on IP ownership
- Equipment sharing and its effect on IP ownership
- "Background IP" and its effect on research collaboration

Multiparty collaboration and joint IP ownership management

- Multiparty collaboration best structured by contract
- Clarity of: IP ownership & disposition
- IP ownership → inventorship (this is optimal!)
- IP disposition  $\rightarrow$  serves interests of parties

(align with all institutional IP Policies)

 Parties need an IP decision-making process (committee? managing partner?)

#### **Professors Privilege**

## Drawbacks:

 Disenfranchises faculty who can't afford to pay for patents

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- Professors generally aren't good businessman the TTO provides the business expertise
- Multiple inventors is complicated
  - Is it appropriate for university laboratories to become private CRO's for professors?



## Types of IP Generated by Academic Institutions

- Patents
- Utility models
- Industrial designs
- Copyright
- Literary works

(Course-ware, Computer software, Video, Multimedia)

- Geographical indications
- Trade and service marks
- Plant Breeder's Rights (new plant varieties)
- Trade secrets

#### **Benefits of Institutional Ownership**

- Establishes clear title to IP generated by the institution's faculty
- Essential for collaborative research with industry Many international funding arrangements will require it too
- Allows institution to create an IP management office
   Develop expertise
  - Apply consistent policies and valuations
  - Provide funds for patenting

#### **Some IP Ownership Issues**

- Retain right to practice IP licensed to others
- "Shop right" to IP owned by faculty and brought to the institution

#### **Nine IP Policy Points to Consider**

(Endorsed by AUTM)

#### Developed by 11 U.S. universities and AAMC, led by Stanford

- 1. Reserve right to practice inventions
- 2. Encourage use of idea
- 3. Minimize licensing improvements
- 4. Manage conflicts of interest
- 5. Ensure broad access to research materials
- 6. Carefully consider enforcement
- 7. Understand export regulations
- 8. Be mindful of working with patent aggregators
- 9. Consider "carve outs" for unmet needs

## Point 1: Reserve Right to Use

- Internal use ensures that your inventor can continue their work
- Request that other universities and government agencies can use it as well
- Helps prevent an idea from being ignored
- Allows broad research community to check data, reproduce results, and guarantee integrity of research results

## Point 2: Encourage Use

- Ideas that are licensed but not developed do not serve society
- Cost of removing research ideas from the community is more than the value of the idea
- Early stage ideas may be capable of addressing needs in multiple markets, use promotes working on all ideas in parallel when possible

## Point 3: Minimize Licensing Improvements

- Licenses that contain rights to improvements decrease the ability of a faculty research lab to receive other funding
- Value of each idea is diminished, especially for platform technologies
- May inadvertently license rights to faculty not compensated by the license

## Point 4: Manage Conflicts

- Conflicts of interest and commitment cannot be avoided but can be managed
- Open discussion of potential conflicts inhibits misunderstandings

## Point 5: Access to Research Tools

- Research tools helped create the idea itself
- Critical to the ability of the scientific community to reproduce the results
- Tools may lead to other discoveries in the field

## Point 6: Carefully Consider Enforcement

- Goal of university is to promote technology use
- Enforcement means telling someone they cannot use your idea (without a license, if one is available)

## Point 7: Export Control

 Government regulations may limit the ability to take technology out of the country or have researchers who are not citizens work on the project

More complex than export of tangible items

## Point 8: Patent Aggregators

- Also called non-practicing entities (NPE), or patent "trolls"
- 'Value add' aggregators pool patents to promote use by others and increase freedom to practice
- "Trolls" use patents to extract payments and are less interested in use
- Current US debate on IP reform is vigorous on these points

## Point 9: Consider the Underserved

- Emerging markets have less ability to pay for patented technologies
- Include provisions that permit use in neglected areas Patients
  - Geography

Agriculture

See "PIPRA", Public Intellectual Property Resource for Agriculture

http://www.pipra.org/en/page/Default/index

## Scope of the IP Policy (from WIPO IP Policy Template)

This IP Policy applies to all Institution Personnel, unless there are written contract clauses that stipulate otherwise, and which have been approved by the Senior Authorized Officer of the Institution.

 Institution Personnel includes Employees, anyone with a Research or Teaching Appointment, anyone with a Visiting Researcher or Visiting Scholar Appointment, or Adjunct Faculty.

(Note: any non-employee that carries out work related to research, educational, or outreach activity of the Institution (not including facilities maintenance, repair, or construction), except work under a signed contract with the Institution, must as a prerequisite of such work, hold a formal Appointment .

OPTIONAL

- Institution Personnel also includes: any person who, under contract with the Institution, is engaged as a consultant, or on secondment to the Institution; and
- Students (Not recommended)

- Ownership of IP in Inventions or Creative Works invented/created by Institution Personnel in the course of carrying out their Institution Duties or with Substantial Use of Institution resources, vests in the Institution [unless otherwise agreed in contracts signed between the Institution and relevant third parties
- Ownership of IP in Inventions or Creative Works IP invented/created by Institution Personnel outside the course of carrying out their Institution Duties and with no Substantial Use of Institution resources, vests in the Inventor/Creator.

- Institution Duties means all those activities required of an individual by the Institution in the conduct of their institutional employment, appointment, or other formal affiliation with the Institution.
- Substantial Use means unreimbursed use of the Institution's resources or facilities (including but not limited to laboratories, design studios, pilot plants, workshops, or computational facilities), equipment, human resources
   [including supervision?], or funding. Substantial Use does not include routine use of libraries and office space [option: elaborate what does not constitute Substantial Use].

## Institution Ownership of IP (from WIPO IP Policy Template)

- Invention means a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. It involves a new composition, device, process, or method. A patentable invention is a novel, useful, and nonobvious improvement of a process, machine, or product that satisfies the statutory criteria of patentability. See also Patentable Invention.
- Creative Work means any non-patentable intellectual creation potentially subject to a form of IP .

## External Partners, Sponsored Research, Technical Services

#### • The primary issue:

Ownership/control of IP that arises in research and technical work, and in collaboration with other parties

 Sound IP management and effective technology transfer requires clear and solid rules for IP ownership under these conditions

 Most outside entities expect the institution to have predictable rules of IP ownership and prefer institutional ownership rather than ownership by individuals at the institution

 Losing control (ownership) of IP made by institution persons or at institution means losing control of IP and its benefits for the institution

#### **External Partners, Sponsored Research,**

#### **Technical Services**

## Research

Intellectually exploratory work, designed and led by a Principal Investigator.

The institution owns IP that arises

## **Technical Services**

Not intellectually exploratory, no PI, routine testing and analysis, technician-level management

• The client owns the results of the technical services.

 However, if institution staff make inventions of the method (unless provided by client) or equipment belongs to the institution.

## IP ownership under Research contracts

Some institutions grant ownership to funders

(i.e. "sell" their IP)

- but, this is highly problematic and not recommended
- A much preferable policy:
  - **Ownership directly tied to inventorship**

This maintains the linkage of inventor-to-invention and respects the value of intellectual contribution over money (an underlying tenet of university technology transfer) IP ownership under Research contracts A preferable policy Ownership directly tied to inventorship

Inventions solely made by institution personnel
 Solely owned by the institution (no exceptions!)

Inventions solely made by funder's personnel
 Solely owned by the funder

 Inventions jointly made by institution & funder personnel

Jointly owned by institution & funder

## IP ownership under Research contracts A preferable policy Ownership directly tied to inventorship

- Respects the university's basic principle of the primacy of intellectuality – not mercantilism
- Maintains the key linkage between inventor and invention – another key attribute of the university

 Preserves the focus on technology rather than money

## **IP ownership vs Commercial Use Rights:**

#### responding to industry's concerns

#### Industry's view: we paid for the work to be done,

we should own the IP

## **Institution's view**: you paid for the work (and data), but not for invention

(the creative mind of the inventor is not for sale; and would cost much more than the cost of the research, if it were)

#### The underlying needs of each party:

- Industry needs commercial use rights
- Institution needs to own to protect its mission and long-term interests

## IP ownership vs Commercial Use Rights:

## responding to industry's concerns

## The Resolution:

- Institution retains ownership of IP made by its faculty and staff..... but,
- Grants company funding research all the rights it needs to profitably commercialize that IP

(e.g., Exclusive, world-wide, all fields)

## **IP ownership under Research contracts**

- Need to respect national laws and regulations
- Government funding may come with IP ownership conditions
- IP Ownership (or serious conditions) requests by industry & commodity associations with political weight

## **IP ownership and Faculty Consulting**

- Is consulting for outside entities acceptable?
- Can be a good idea and ethically acceptable but, not if it subverts the institution's rightful IP ownership
- Consulting activities can never cause faculty or staff to act contrary to their obligations to the institution under the IP Policy

## IP ownership under Research contracts

- The preferable policy
  - Ownership directly tied to inventorship

This allows the institution to participate in designing IP utilization schemes with collaborators:

Philianthropic consortia
 Wheat Rust Initiative
 Public IP Resource for Agriculture (PIPRA)

## **Protecting Academic Standards**

- Freedom to keep working in the field
- Freedom to publish

Licensee/Research sponsor gets rights to review publications for:

**Confidential information** 

- May require it be removed before publication
- Patentable material
  - 30 days to review
  - 30 days to correct

## **Protecting Societal Interests**

• Preference for local companies

Reward taxpayer funding of the institution Economic development

- Global health considerations
- Export controls

## **Copyright Policy**

"Professor's Privilege"

Faculty own scholarly works

- University owns copyright related to sponsored research
- Corporate sponsor may own results as "work for hire" if permitted

## **Ownership and Use of Data**

- Who owns data?
  - Professor
  - Institution
- Who is responsible for managing it? Promote or protect access
- Human subjects information may have special considerations
- How long must you keep it?

## Policy: Data Use

- Open dissemination of research
- Accessibility for continued work
- Diligent development of products or return rights to university
- Maximize \*use\* of the IP
- University must uphold obligations from sponsors and to inventors

#### Academic Freedom & Protection of IP

(from WIPO IP Policy Template)

The Institution acknowledges that academic freedom is integral to the public good and the mission of the Institution and thus, the unfettered right of Institution Personnel to publish, is absolute.

In parallel with inviolable academic freedom and right to publish, the Institution acknowledges that, in certain situations, serving the public good and the interest of the Institution by making Institution Inventions and Creations available to the public through the Commercialization process, can best be accomplished if such Inventions and Creations are protected by IP.

### Academic Freedom & Protection of IP

(from WIPO IP Policy Template)

Furthermore, the Institution also acknowledges that financial and other rewards that may be attained through the process of making Inventions and Creations available to the public through Commercialization can incentivize Personnel, improve Invention and Creation, and improve the ability of the Institution to accomplish its mission, and fund further research, thus supporting sustainability.

The Institution hereby commits to: 1) not limit Personnel's right to publish, and 2) strongly encourage Institution Inventors, Creators, and other Personnel to avoid loss of IP rights caused by premature publication prior to taking steps for IP protection.

## Patent Assignment agreements

Consider national laws and tradition

For example, in the U.S., unless there is a contract that dictates otherwise, the inventor is the owner of the patent

 Therefore, it's essential that the institution take active steps to require personnel to agree (preferably in writing) to assign their ownership rights in patentable inventions to the institution

Note: this is a routine practice in industry

## Copyright Assignment agreements

Consider national laws and tradition

For example, in the U.S., unless there is a contract that dictates otherwise, the employer is the owner of the copyright

 Copyright assignment complicated by the academic tradition in which faculty own their own texts, authored works, and educational materials (e.g., syllabi, etc.)

## Patent Assignment agreements

## How to obtain signed Patent Assignment Agreements

- The ideal: a Patent Assignment Agreement signed and archived for each faculty, staff, and appointee prior to doing any work at the institution.
- This is difficult given the numbers of faculty, staff, and appointees coming and going from work at the institution

## Patent Assignment agreements

Some approaches to obtaining signed Patent Assignment Agreements

- Require signature at time of hiring for all new hires/appointments
- Require departments to obtain signed agreement from all faculty and staff
- Designate the office responsible for collecting and recording all agreements; track down agreements for all
- Passive implementation: promulgate the policy requirements widely; state that cashing the first check or receiving appointment letter is tantamount to agreement to assign
- Require Assignment Agreement at time of invention disclosure

## Track 4

#### **Technology Transfer Managers & Directors**

## Topic 4.1.2 IP Ownership Models