

This guidebook outlines the essential elements of the technology transfer process at Princeton University. It addresses the most common questions typically fielded from our research community, provides a broad overview of the technology transfer process and describes the services available for researchers.

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CONTENTS

Preface	3
Overview.	4
The Technology Transfer Process	6
Research Considerations	10
Invention Disclosures.	12
Ownership of Intellectual Property.	13
Assessment of an Invention Disclosure	14
Patents and Other Legal Protection	16
Considerations for a Startup Company	22
Marketing to Find a Licensee	24
Licenses and Other Agreements	25
Commercialization	27
Navigating Conflict of Interest.	28
Revenue Distributions	30
Reinvestment and Relationships	30
Technology Transfer Resources	31

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Note: This booklet is based on the University of Michigan’s “Inventor’s Guide to Technology Transfer” with adaptations for Princeton and Princeton’s Office of Technology Licensing. We are very grateful to Ken Nisbett, Robin Rasor and the staff of the UM Office of Technology Transfer for their kind permission to use their excellent material and to the University of Michigan for permission to use its copyrighted material.

“The culture of innovation and entrepreneurship thrives at Princeton, where some of the world’s most creative individuals explore scientific and technical frontiers, seeking to push the envelope of human knowledge.

As a University, we are proud that so many of our faculty members make discoveries and create inventions that have the potential to benefit society.

The Office of Technology Licensing is a key partner in Princeton’s innovation enterprise.”

Pablo G. DeBenedetti
Dean for Research
Class of 1950 Professor in Engineering and Applied Science
Professor of Chemical and Biological Engineering

PREFACE

- *A life-saving cancer drug*
- *A novel technology for energy-efficient lighting*
- *Chemicals for printed electronics that could revolutionize consumer packaging*

These are some of the Princeton innovations that are making a difference in people's lives and stimulating our economy.

At the Office of Technology Licensing (OTL), we help connect industry partners, investors and entrepreneurs with Princeton's cutting-edge technologies and researchers to bring innovative solutions to real-world problems.

OTL facilitates the transformation of scientific and technological discoveries into products and services for societal benefit in a manner consistent with Princeton University's emphasis on preeminent research, education and dedication to public service.

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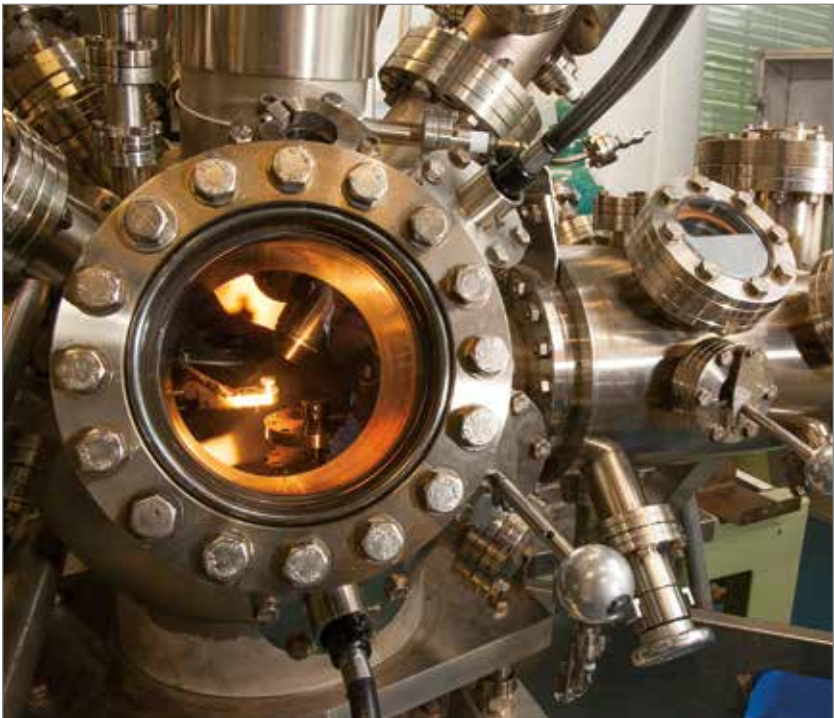
OVERVIEW

What is technology transfer?

Technology transfer is the transfer of research discoveries and knowledge to the public. It can occur through publications, students entering the workforce, exchanges at conferences, and relationships with industry, among other things. For the purposes of this guide, however, technology transfer refers to the formal licensing of technology to third parties under the guidance of professionals employed by universities, research foundations and businesses.

What is the Princeton University Office of Technology Licensing (OTL)?

OTL is a University service unit composed of specialists in licensing, business development and legal matters who are experienced in transferring technologies across a broad array of fields, including the physical sciences, life sciences, engineering, and information and computer sciences. We are responsible for managing invention disclosures from Princeton University and the U.S. Department of Energy's Princeton Plasma Physics Laboratory.



Why would a researcher want to participate in the technology transfer process?

The reasons are unique to each researcher and may include:

- making a positive impact on society
- feeling a sense of personal fulfillment
- achieving professional recognition
- generating additional research funding
- meeting the obligations of a research contract
- attracting research sponsors
- creating educational opportunities for students
- linking students to future job opportunities

How is technology transferred?

Technology is typically transferred through a license agreement in which the University grants its rights in the defined technology to a third party for a period of years, sometimes limited to a particular field of use and/or region of the world. The licensee (the third party licensing the technology) may be an established company or a new business startup. Licenses include terms that require the licensee to meet certain performance requirements and to make financial payments to the University. These payments are shared with the inventors in addition to relevant departments to provide support for further research, education and participation in the technology transfer process.

What is the Bayh-Dole Act?

The **U.S. Bayh-Dole Act of 1980** allows universities and other nonprofit institutions to have ownership rights to discoveries resulting from federally funded research, provided certain obligations are met. These obligations include making efforts to protect (when appropriate) and commercialize the discoveries, submitting progress reports to the funding agency, giving preference to small businesses that demonstrate sufficient capability, and sharing any resulting revenues with the inventors. The Bayh-Dole Act is credited with stimulating interest in technology transfer activities and generating increased research, commercialization, educational opportunities and economic development in the United States.

Note: Throughout this guidebook, unless specifically described otherwise, the term “inventor” includes individuals listed on a patent as well as contributors who have shared in creating the value of intellectual property that is not patented.

THE TECHNOLOGY TRANSFER PROCESS

How do I work with Princeton University OTL?

We encourage you to contact OTL during your early research activities to be aware of the options that will best leverage the potential of your research. Our staff is trained to assist you with questions related to marketability, funding sources, commercial partners, patenting and other protection methods, new business startup considerations, University policies and procedures, and much more. Our team approach provides you with an assigned licensing associate supported by internal and external legal assistance.

What are the typical steps in the process?

The process of technology transfer is summarized in the steps that follow. Note that these steps can vary in sequence and may occur simultaneously.



1 Research: Observations and experiments during research activities often lead to discoveries and inventions. An invention is any useful process, machine, composition of matter, or any new or useful improvement of the same. Often, multiple researchers may have contributed to the invention.

2 Pre-Disclosure: An early contact with OTL personnel to discuss your invention and to provide guidance with respect to the disclosure, evaluation and protection processes described below.

3 Invention Disclosure: The written notice of invention to OTL that begins the formal technology transfer process. An invention disclosure is a confidential document and should fully document your invention so that a proper assessment can be made.

4 Assessment: The period in which you and an OTL licensing associate review the invention disclosure, conduct patent searches (if applicable), and analyze the market and competing technologies to determine the invention's commercialization potential. This evaluation process, which may lead to a broadening or refinement of the invention, will guide our strategy on whether to focus on licensing to an existing company or creating a new business startup.

5 Protection: The process in which protection for an invention is pursued. Patent protection, a common legal protection method, begins with the filing of a patent application with the U.S. Patent and Trademark Office and, when appropriate, foreign patent offices. Once a patent application has been filed, it will typically require several years and tens of thousands of dollars to obtain issued U.S. and foreign patents. Other protection methods include copyright and trademark.

6 Marketing: With your active involvement, OTL licensing associates identify candidate companies that have the expertise, resources and business networks to bring the technology to market. This may involve partnering with an existing company or forming a startup. Your active involvement can dramatically shorten this process.

7 a) Form a Startup: If creation of a new business startup has been chosen as the optimal commercialization path, OTL will work as business-formation consultants to assist in planning, forming and providing contacts for funding.

7 b) Existing Business: If an appropriate and interested existing company — or companies — are selected as a potential licensee, OTL works with those potential licensees, together with inventors, to develop the appropriate financial and diligence terms to most effectively transfer the technology.

8 Licensing: A license agreement is a contract between the University and a third party in which the University's rights to a technology are

licensed, without relinquishing ownership, for financial and other benefits. A license agreement is used with both a new startup business and with an established company. An option agreement is sometimes used to enable a third party to evaluate the technology for a limited time prior to making a decision about licensing.

9 Commercialization: The licensee continues the advancement of the technology and makes other business investments to develop the product or service. This step may entail further development, regulatory approvals, sales and marketing support, training, and other activities.

10 Revenue: Revenues received by the University from licenses are re-invested in schools, departments, units, central administration and where required, with inventors to fund additional research and education, and to encourage further participation in the technology transfer process.



How long does the technology transfer process take?

The process of protecting the technology and finding the right licensing partner may take months — or even years — to complete. The amount of time will depend on the development stage of the technology, the market for the technology, competing technologies, the amount of work needed to bring a new concept to market-ready status, and the resources and willingness of the licensees and the inventors.

How can I help in this process?

- Call OTL at 609-258-1001 or contact any licensing associate (www.princeton.edu/patents) when you believe you have created or discovered something unique with potential commercial or research value.
- Complete and submit the Princeton University Invention Disclosure Form (www.princeton.edu/patents/faculty-and-researchers/disclose-an-invention) before publicly disclosing your technology or submitting a manuscript for review and publication. See more under “Research Considerations” (page 10) and “Invention Disclosures” (page 12) regarding the disclosure of an invention prior to any publication or presentation, including submitting an abstract for a meeting at which you plan to present your technology.
- To avoid risking your patent rights and possibly hindering the opportunity to market your invention, contact OTL before holding any discussions with people outside the Princeton University community.
- On the Princeton University Invention Disclosure Form, include companies and contacts you believe might be interested in your invention or who may have already contacted you about your invention. Studies have shown that over 70 percent of all licenses are executed with commercial entities known by the inventor, so your contacts can be extremely useful.
- Respond to OTL and outside patent counsel requests. As some aspects of the patent and licensing process may require significant participation on your part, we will strive to make efficient use of your valuable time.
- On an ongoing basis, keep OTL informed of upcoming publications or interactions with companies related to your intellectual property.

RESEARCH CONSIDERATIONS

Will I be able to publish the results of my research and still protect the commercial value of my intellectual property?

Yes, but since patent rights are affected by these activities, it is best to submit an invention disclosure (discussed on pages 12-13) well before communicating or disclosing your invention to people outside the Princeton University community. There are significant differences between the United States and other countries as to how early publication affects a potential patent. Once publicly disclosed (published or presented in some form), an invention may have restricted or minimal potential for patent protection outside of the United States. Be sure to inform the Princeton University licensing associate assigned to you of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal submission, dissertation/thesis, publication or other public presentation including the invention.

May I use materials or intellectual property from others?

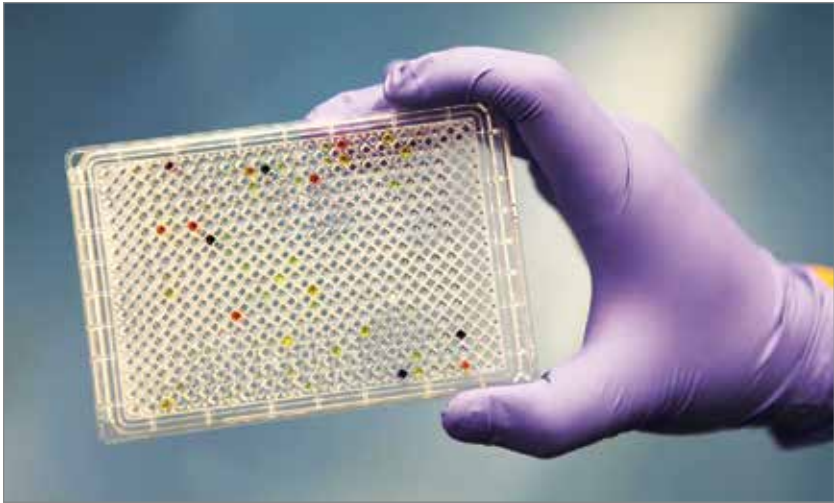
Yes, if the other party is willing to share materials. It is important to document carefully from whom and under what conditions you obtained materials so that we can determine if your use may impact the ownership rights of a subsequent invention or technology. Although Princeton does not require a formal Material Transfer Agreement (MTA) in this case, it may be required by the other party's institution.

Will I be able to share my materials or intellectual property with others?

Yes. For nonhuman materials to be used for research purposes by academic colleagues, Princeton does not require or encourage the use of an MTA. If circumstances require an MTA, the Simple Letter Agreement or the Uniform Biological Material Transfer Agreement should be used without changes. Sharing any materials with commercial colleagues or sharing human-derived materials with commercial or academic colleagues may require the use of additional terms and conditions. Contact OTL for additional guidance on material transfers.

What rights does a research sponsor have to any discoveries associated with my research?

The sponsored research agreement should specify the intellectual property rights of the sponsor. The University generally retains ownership of the patent rights and other intellectual property resulting from sponsored research. However, the sponsor may have rights to obtain a license to the defined and expected outcomes of the research. Sponsored research contracts



often allow the sponsor a limited time to negotiate a license for any patent or intellectual property rights developed from the research. Even so, the sponsor generally will not have contractual rights to discoveries that are clearly outside of the scope of the research. Therefore, it is important to define the scope of work within a research agreement.

Sponsored research projects are handled by the Office of Research and Project Administration (ORPA). ORPA project representatives work closely with OTL on intellectual property issues in sponsored research agreements. If you have questions about sponsored research, contact the ORPA project representative responsible for your department (www.princeton.edu/orpa) or call ORPA at 609-258-3091.

What about consulting?

When researchers enter into consulting agreements, they are deemed to be acting outside of the scope of their employment. Therefore, consulting arrangements are not negotiated by the University nor formally reviewed by OTL or ORPA. Researchers who enter into consulting agreements should familiarize themselves with the University policies relevant to consulting activities. The researcher is expected to ensure that the terms of the consulting arrangement are consistent with University policies, including those related to intellectual property ownership, employment responsibilities and use of intellectual property. OTL is available to provide informal advice on how your consulting agreement relates to your Princeton University intellectual property.

(Information regarding consulting and conflict of interest can be found at www.princeton.edu/ria/conflict-of-interest.)

INVENTION DISCLOSURES

What is an invention disclosure?

An invention disclosure is a written description of your invention or development that is provided to Princeton University OTL. The disclosure should list all sources of support and include all of the information necessary to begin pursuing protection, marketing and commercialization activities.

This document will be treated as confidential. Based on the invention disclosure and with your input, OTL may generate a non-confidential description of your invention to assist in marketing the technology. Once potential partners have been identified and confidentiality agreements have been signed, more detailed exchanges of information can be made.

Why should I submit an invention disclosure?

When you disclose your invention to OTL, it starts a process that could lead to the commercialization of your technology. This may involve beginning the legal protection process and working to identify outside development partners. If government funds were used for your research, you are required to file a prompt disclosure, which will be reported to the sponsoring agency. Similar requirements may exist for other sponsored projects.

How do I know if my discovery is an invention?

You are encouraged to submit an invention disclosure for all inventions and developments that you feel may solve a significant problem and/or have significant value. If you are in doubt, contact OTL to discuss the invention and strategies for commercialization.

When should I complete an invention disclosure?

You should complete an invention disclosure whenever you feel you have discovered something unique with possible commercial value. This should be done well before presenting the discovery through publications, abstracts, poster sessions, conferences, press releases or other communications. Once disclosed publicly (i.e., published or presented in some form), an invention may have restricted or minimal potential for patent protection outside of the United States. Differences exist between the U.S. and other countries on the impact of early publication on a potential patent. Be sure to inform OTL of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal, dissertation/thesis, publication or other public presentation that includes the invention.

Should I disclose research tools?

Yes, if your new tools would benefit other researchers and you are interested in providing them to those researchers and other third parties. Typically, research tools are materials such as antibodies, vectors, plasmids, cell lines, mice and other materials used as “tools” in the research process. Most research tools do not necessarily need to be protected by patents in order to be licensed to commercial third parties and/or generate revenue for your laboratory. If you have research tools that you believe are valuable, or wish to provide to others (including research collaborators), OTL will work with you to develop the appropriate protection, licensing and distribution strategy.

How do I submit an invention disclosure?

You can download a disclosure form and simple instructions from the OTL website at www.princeton.edu/patents/faculty-and-researchers/disclose-an-invention.

If you have any questions, call our office at 609-258-1001 or contact any licensing associate directly (www.princeton.edu/patents).

OWNERSHIP OF INTELLECTUAL PROPERTY

What is “intellectual property”?

Intellectual property is an invention and/or material that may be protected under patent, trademark and/or copyright laws, and sometimes by contract.

Who owns what I create?

Ownership depends upon the employment status of the creators of the invention and their use of University facilities. Considerations include:

- What is the source of the funds or resources used to produce the invention?
- What was the employment status of the creators at the time the intellectual property was made?
- What are the terms of any agreement related to the creation of the intellectual property?

As a general rule, the University owns inventions made by its faculty, students and staff while acting within the scope of their employment or using University resources. The University’s patent policy describes the applicable rules for copyrightable works as well; see www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter8/#intellectualproperty. In some cases, the terms of a sponsored research agreement or Material Transfer Agreement (MTA) may impact ownership. When in doubt, it is best to contact Princeton University OTL for advice.

What is Princeton University's policy on ownership of inventions?

The policy is stated in the Rules and Procedures of the Faculty of Princeton University and Other Provisions of Concern to the Faculty. See: www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter8/#intellectualproperty.

Who owns rights to discoveries made while I am consulting?

The ownership of inventions made while consulting for an outside company depends on the terms of your consulting contract. It is important to clearly define the scope of work within consulting contracts to minimize any issues with ownership of inventions created from University research. If you have questions, OTL is available for informal advice.

Should I list visiting scientists or scientists at other institutions on my invention disclosure?

All contributors to the ideas leading to a discovery should be mentioned in your disclosure, even if they are not Princeton University employees. Princeton University OTL, along with legal counsel, will determine the rights of such persons and institutions. It is prudent to discuss with OTL all working relationships (preferably before they begin) to understand the implications for any subsequent inventions.

Can a student contribute to an invention?

Yes, many students contribute to inventions at Princeton University and can be named as inventors under the University's intellectual property policy. The policy for ownership of an invention developed with or by a student is the same as for any other member of the University.

ASSESSMENT OF AN INVENTION DISCLOSURE

How does Princeton University assess invention disclosures?

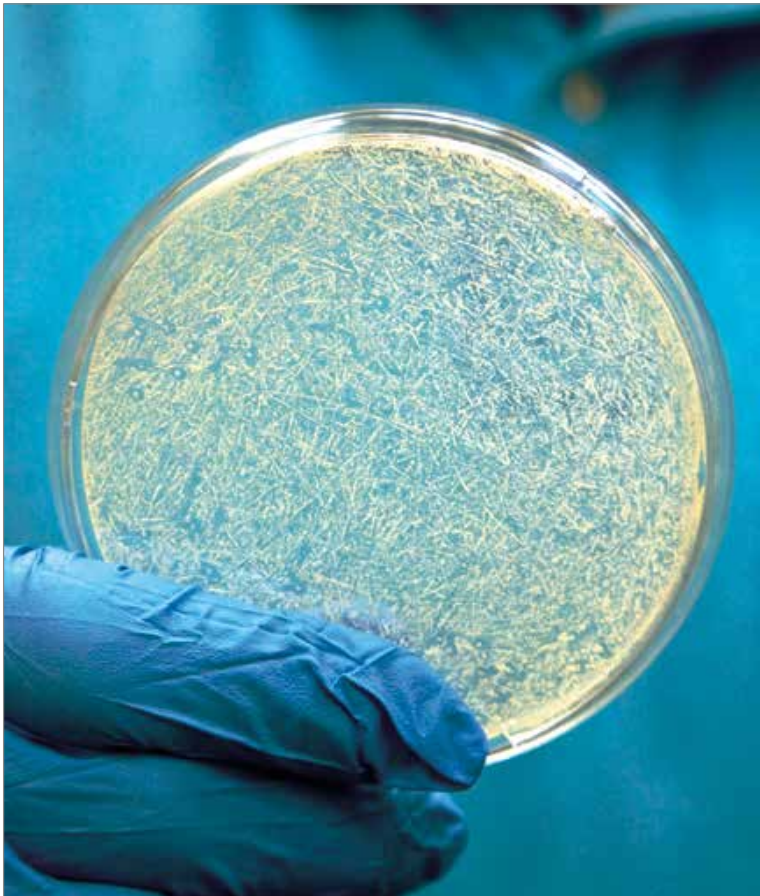
Licensing associates at Princeton University OTL examine each invention disclosure to review the novelty of the invention, protectability and marketability of potential products or services, relationship to related intellectual property, size and growth potential of the relevant market, amount of time and money required for further development, pre-existing rights associated with the intellectual property, and potential competition from other products/technologies. This assessment may also include consideration of whether the intellectual property can be the basis for a new startup company.

How do we decide whether to commercialize with a traditional or an “open source” license for software?

If you believe your software may have commercial applications, OTL will assist in determining whether a traditional, open source, or hybrid license would best fit both the research and commercial goals of the inventors. OTL also supports University software developers who choose to make their program available to the public through open-source mechanisms. If you choose to open source your program, you may do so without informing OTL, provided that open-sourcing is consistent with obligations to sponsors and the Princeton Copyright Policy.

Is an invention ever assigned to the inventor?

If OTL decides not to pursue patent protection and/or chooses not to market the invention actively, the University may transfer ownership to the inventor(s). Reassignment of inventions funded from U.S. government sources requires the government’s prior approval.



PATENTS AND OTHER LEGAL PROTECTION

What is a patent?

In the United States, a patent gives the holder the right to exclude others from making, using, selling, offering to sell and importing the patented invention. A patent does not necessarily provide the holder any affirmative right to practice a technology since it may fall under a broader patent owned by others. Instead, it provides the right to exclude others from practicing the invention. Patent claims are the legal definition of an inventor's protectable invention.

What type of subject matter can be patented?

Patentable subject matter includes processes, machines, compositions of matter, articles, some computer programs and methods (including methods of making compositions, methods of making articles, and even methods of performing business).

Can someone patent a naturally occurring substance?

Generally, no. A natural substance that has never before been isolated or known may be patentable in some instances, but only in its isolated form (since the isolated form had never been known before). A variation of a naturally occurring substance may be patentable if an inventor is able to demonstrate substantial non-obvious modifications that offer advantages of using the variant.

What is the United States Patent and Trademark Office (USPTO)?

The USPTO is the federal agency, organized under the Department of Commerce, that administers patents on behalf of the government. The USPTO employs patent examiners skilled in all technical fields in order to appraise patent applications. The USPTO also issues federal trademark registrations.

What is the definition of an inventor on a patent and who determines this?

Under U.S. law, an inventor is a person who takes part in the conception of the ideas in the patent claims of a patent application. Thus, inventorship of a patent application may change as the patent claims are changed during prosecution of the application. An employer or person who only furnishes money to build or practice an invention is not an inventor. Inventorship is a legal issue and may require an intricate legal determination by the registered patent attorney prosecuting the application.

Who is responsible for patenting?

Princeton University OTL contracts with outside patent counsel for protection of intellectual property, thus assuring access to patent specialists in diverse technology areas. Inventors work with the patent counsel in drafting the patent applications and responses to worldwide patent offices. OTL licensing associates will help with the selection and oversight of the outside patent counsel.

What is the patenting process?

Patent applications are generally drafted by a patent attorney or a patent agent (a non-attorney with a science education licensed to practice by the USPTO). The patent attorney will generally ask you to review an application before it is filed and will also ask you questions about inventorship of the application claims. At the time an application is filed, the patent attorney will ask the inventor(s) to sign an Inventor's Declaration and an Assignment, which evidences the inventor's duty to assign the patent to the University.

In about one year or longer, depending on the type of technology, the patent attorney will receive written notice from the USPTO as to whether the application and its claims have been accepted in the form as filed. More often than not, the USPTO rejects the application because either certain formalities need to be cleared up, or the claims are not patentable over the "prior art" (anything that workers in the field have made or publicly disclosed in the past). The letter sent by the USPTO is referred to as an Office Action or Official Action.

If the application is rejected, the patent attorney must file a written response, usually within three to six months. Generally, the attorney may amend the claims and/or point out why the USPTO's position is incorrect. This procedure is referred to as patent prosecution. Often it will take two USPTO Official Actions and two responses by the patent attorney — and sometimes more — before the application is resolved. The resolution can take the form of a USPTO notice that the application is allowable; in other words, the USPTO agrees to issue a patent. During this process, input from the inventor(s) is often needed to confirm the patent attorney's understanding of the technical aspects of the invention and/or the prior art cited against the application. The USPTO holds patent applications confidential until published by the USPTO 18 months after initial filing.

Is there such a thing as a provisional patent?

No. However, there is a provisional patent application, which is described below.

What is the difference between a provisional patent application and a regular (or “utility”) patent application?

In certain circumstances, U.S. provisional patent applications can provide a tool for preserving patent rights while temporarily reducing costs. This occurs because the application is not examined during the year in which it is pending and claims are not required. A regular U.S. application and related foreign applications must be filed within one year of the provisional form in order to receive its early filing date. However, an applicant only receives the benefit of the earlier filing date for material that is adequately described and enabled in the provisional application. As a result, the patent attorney may need your assistance when an application is filed as a provisional.

What’s different about foreign patent protection?

Foreign patent protection is subject to the laws of each country, although in a general sense the process works much the same as it does in the United States. In foreign countries, however, an inventor will lose any patent rights if he or she publicly discloses the invention prior to filing the patent application. In contrast, the United States has a one-year grace period.

Is there such a thing as an international patent?

Although an international patent does not exist, an international agreement known as the Patent Cooperation Treaty (PCT) provides a streamlined filing procedure for most industrialized nations. For U.S. applicants, a PCT application is generally filed one year after the corresponding U.S. application (either provisional or regular) has been submitted. The PCT application must later be filed in the national patent office of any country in which the applicant wishes to seek patent protection, generally within 30 months of the earliest claimed filing date.

The PCT provides two advantages. First, it delays the need to file costly foreign applications until the 30-month date, often after an applicant has the opportunity to further develop, evaluate and/or market the invention for licensing. Second, the international preliminary examination often allows an applicant to simplify the patent prosecution process by having a single examiner speak to the patentability of the claims, which can save significant costs in prosecuting foreign patent applications.

An important international treaty called the Paris Convention permits a patent application filed in a second country (or a PCT application) to claim the benefit of the filing date of an application filed in a first country. However, pursuant to this treaty, these so-called “convention applications” must be filed in foreign countries (or as a PCT) within one year of the first filing date of the U.S. application.

What is the timeline of the patenting process and resulting protection?

Currently, the average U.S. utility patent application remains pending for about two years, though inventors in the biotech and computer fields should plan on a longer waiting period. Once a patent is issued, it is enforceable for 20 years from the initial filing of the application that resulted in the patent, assuming that USPTO-mandated maintenance fees are paid.

Why does Princeton University protect some intellectual property through patenting?

Patent protection is often a requirement of a potential commercialization partner (licensee) because it can protect the commercial partner's often sizable investment required to bring the technology to market. Due to their expense and the length of time required to obtain a patent, patent applications are not possible for all Princeton University intellectual property. We carefully review the commercial potential for an invention before investing in the patent process. However, because the need for commencing a patent filing usually precedes finding a licensee, we look for creative and cost-effective ways to seek early protections for as many promising inventions as possible.

Who decides what gets protected?

OTL and the inventor(s) consider relevant factors in making recommendations about filing patent applications. Ultimately, OTL makes the final decision as to whether to file a patent application or seek another form of protection.



What does it cost to file for and obtain a patent?

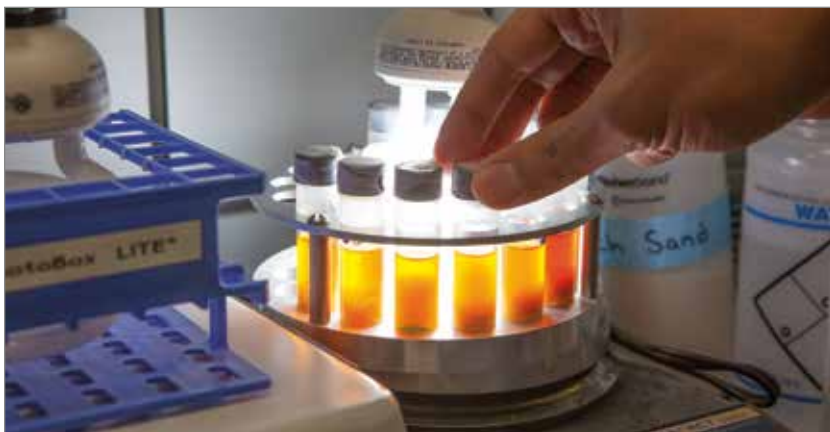
Filing a regular U.S. patent application may cost between \$15,000 and \$20,000. To obtain an issued patent may require an additional \$10,000 to \$15,000 for patent prosecution. Filing and obtaining issued patents in other countries may cost \$30,000 or more per country. Also, once a patent is issued in the United States or in foreign countries, certain maintenance fees are required to keep the patent alive.

What if I created the invention with someone from another institution or company?

If you created the invention under a sponsored research or consulting agreement with a company, the OTL licensing associate will need to review that contract to determine ownership and other rights associated with the contract and to determine the appropriate next steps. Should the technology be jointly owned with another academic institution, the licensing associate will usually enter into an Inter-Institutional Agreement that provides for one of the institutions to take the lead in protecting and licensing the invention, sharing of expenses associated with the patenting process, and allocating licensing revenues. If the technology is jointly owned with another company, the licensing associate will work with the company to determine the appropriate patenting and licensing strategy.

Will the University initiate or continue patenting activity without an identified licensee?

Often the University accepts the risk of filing a patent application before a licensee has been identified. After University rights have been licensed to a licensee, the licensee generally pays the patenting expenses. At times we must decline further patent prosecution after a reasonable period (often a year or two) of attempting to identify a licensee or if it is determined that we cannot obtain reasonable claims from the USPTO.



What is a copyright and how is it useful?

Copyright is a form of protection provided by law to authors of “original works of authorship.” This includes literary, dramatic, musical, artistic and certain other intellectual works as well as computer software. This protection is available to both published and unpublished works. The U.S. Copyright Act generally gives the owner of copyright the exclusive right to conduct and authorize various acts, including reproduction, public performance and making derivative works. Copyright protection is automatically secured when a work is fixed into a tangible medium such as a book, software code, video, etc. In some instances, the University may register a copyright, but generally not until a commercial product is ready for manufacture. More information about copyright is available at www.princeton.edu/copyright.

What is a “derivative work”?

A “derivative work” is a work based upon one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation or any other form in which a work may be recast, transformed or adapted. A work consisting of editorial revisions, annotations, elaborations or other modifications, that, as a whole, represent an original work of authorship, is a “derivative work.” The owner of a copyright has the right to control derivative works. If your work incorporates parts of a pre-existing copyrighted work, you may need permission or another legal basis for your use.

Who owns a copyrightable work created during employment or study at Princeton?

Works created during the course of University research that is governed by a sponsored research grant or contract are subject to the terms of that grant or contract, which may require the University to retain ownership of copyrights. Reviewing that agreement and consulting with staff in the Office of Technology Licensing can help answer specific questions. More generally, copyrightable works created by a faculty member are ordinarily owned by the faculty member. Unless otherwise agreed with the University, works created by staff in the course of their employment are “works for hire” and are owned by the University, whereas works created by a student are ordinarily owned by the student.

How do I represent a proper copyright notice?

We recommend that you use a copyright notice, although a work may be copyrighted without one. For works owned by the University, use the following template: Copyright © [Year of first publication] by The Trustees of Princeton University (e.g., Copyright © 2015 by The Trustees of Princeton University). For works owned by others, the same format can be followed.

How can I learn more about University copyright policies?

We recommend that you begin by reviewing the University's Intellectual Property Policy at www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter8/#intellectualproperty. Additional information can be found at www.princeton.edu/copyright. Questions about copyright can also be emailed to copyright@princeton.edu.

What is a trademark or service mark and how is it useful?

A trademark includes any word, name, symbol, device or combination that is used in commerce to identify and distinguish the *goods* of one manufacturer or seller from those manufactured or sold by others, and also to indicate the source of the goods. In short, a trademark is a brand name. A service mark is any word, name, symbol, device or combination that is used, or intended to be used, in commerce to identify and distinguish the *services* of one provider from those of others, and to indicate the source of the services.

What is trademark registration?

Trademark registration is a procedure in which the USPTO provides a determination of rights based upon legitimate use of the mark. However, it is not necessary to register a trademark or service mark to prevent others from infringing upon the trademark. Trademarks generally become protected as soon as they are adopted by an organization and used in commerce, even before registration. With a federal trademark registration, the registrant is presumed to be entitled to use the trademark throughout the United States for the goods or services for which the trademark is registered.

CONSIDERATIONS FOR A STARTUP COMPANY

What is a startup company and why choose to create one?

A startup is a new business entity formed to commercialize one or more related inventions. Forming a startup company is an alternative to licensing the intellectual property to an established business. A few key factors when considering a startup company are:

- development risk
- development costs versus investment return
- potential for multiple products or services from the same technology
- sufficiently large competitive advantage and target market
- potential revenues sufficient to sustain and grow a company

The Princeton University Office of Technology Licensing (OTL) can help evaluate these and other factors.

Who decides whether to form a startup?

The choice to establish a new company for commercializing intellectual property is a joint decision made by OTL and the inventors. If a new business startup is chosen as the preferred commercialization path, OTL will assist you in planning and executing the process. Our staff act as business-formation consultants, providing hands-on assistance and access to University and outside resources.

What assistance and resources are available to the inventor?

OTL provides coaches, advisers, resource locators and project planners to help fill the gap between the technology and the formation of a startup. Activities may include identifying management talent, developing a funding strategy, making introductions to potential investors, reviewing business plans and engaging experts to work on key gating issues.

What role does an inventor usually play in a company?

Faculty typically serve as founders, technology consultants, advisers or in some other development capacity. Rarely does a faculty member choose to leave the University and join the startup. In many cases, the faculty role is suggested by the startup investors and management team based on the inventor's expertise and interests. As the company matures, and additional investment is required, the inventor's role may change. Faculty involvement of any kind in a startup is also reviewed by the Princeton University Review Panel on Conflict-of-Interest in Research. Student inventors and postdoctoral fellows may choose to join the startup upon graduation, but rarely have the experience or business skills to serve as the company's sole management.

How much of my time and effort will it take?

Starting a company requires a considerable amount of time and effort. Until the startup team is identified and engaged, the faculty member will need to champion the formation effort. After the team is in place, effort is required for investor discussions, formal responsibilities in or with the company, and University processes such as conflict-of-interest reviews.

Can the University accept equity in the company?

The University can accept equity as part of the financial terms of the license. Equity may be substituted for other cash considerations that are often difficult for startups. It is also a way for the University to share some of the risk associated with the startups. A decision to take equity must make sense for both the University and the company.

Will the University pay for incorporating a startup company?

No. As a separate entity, the startup should pay for its own legal matters, including all business incorporation matters and licensing expenses.

What legal assistance is needed in creating a startup?

In addition to corporate counsel, the startup may have its own intellectual property counsel to assist with corporate patent strategy, especially if the company will be involved in a patent-rich area. The startup's counsel must be separate from Princeton University counsel, though it is advisable and recommended that the corporate counsel and the Princeton University patent counsel coordinate activities. Also, it is wise for inventors to have agreements regarding their roles with the startup reviewed by their own counsel to ensure that all personal ramifications — including taxation and liabilities — are clearly understood.

MARKETING TO FIND A LICENSEE

How does Princeton University OTL market my inventions?

Licensing associates use many sources and strategies to identify potential licensees and market inventions. Sometimes existing relationships of the inventors, OTL staff and other researchers are useful in marketing an invention. Market research can assist in identifying prospective licensees. We also examine other complementary technologies and agreements to assist our efforts. We use our website to publicize inventions, leverage conferences and industry events, and make direct contacts. Faculty publications and presentations are often excellent marketing tools as well.

How are most licensees found?

Studies have shown that 70 percent of licensees were already known to the inventors. Thus research and consulting relationships are often a valuable source for licensees. Licensees are also identified through existing relationships of OTL staff. Our licensees often license more than one technology from the University. We attempt to broaden these relationships through contacts obtained from website posting inquiries, market research, industry events and cultivation of existing licensing relationships.

How long does it take to find a potential licensee?

It can take months and sometimes years to locate a potential licensee, depending on the attractiveness of the invention, its stage of development, competing technologies, and the size and intensity of the market. Most university inventions tend to be at an early stage in the development cycle and thus require substantial commercialization investment, making it difficult to attract a licensee.

How can I assist in marketing my invention?

Your active involvement can dramatically improve the chances of matching an invention to an outside company. Your research and consulting relationships are often helpful in both identifying potential licensees and technology champions within companies. Once interested companies are identified, the inventor is the best person to describe the details of the invention and its technical advantages. The most successful technology transfer results are obtained when the inventor and the licensing professional work together as a team to market and sell the technology.

Can there be more than one licensee?

Yes, an invention can be licensed to multiple licensees, either non-exclusively to several companies or exclusively to several companies, each for a unique field-of-use (application) or geography.

LICENSES AND OTHER AGREEMENTS

What is a license?

A license is a permission that the owner or controller of intellectual property grants to another party, usually under a license agreement.

What is a license agreement?

License agreements describe the rights and responsibilities related to the use and exploitation of intellectual property developed at the University. University license agreements usually stipulate that the licensee should diligently seek to bring the intellectual property into commercial use for the public good and provide a reasonable return to the University.

How is a company chosen to be a licensee?

A licensee is chosen based on its ability to commercialize the technology for the benefit of the general public. Sometimes an established company with experience in similar technologies and markets is the best choice. In other cases, the focus and intensity of a startup company is a better option. It is rare for the University to have multiple potential licensees bidding on an invention.

What can I expect to gain if my intellectual property is licensed?

Most inventors enjoy the satisfaction of knowing their inventions are being deployed for the benefit of the general public. New and enhanced relationships with businesses are another outcome that can augment one's teaching, research and consulting. In some cases, additional sponsored research may result from the licensee.

Additionally, as required by the Bayh-Dole Act and per University policy, a share of any financial return from a license is provided to the inventor(s). For more information, see Princeton's Intellectual Property Policy at: www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter8/#intellectualproperty.

What is the relationship between an inventor and a licensee, and how much of my time will it require?

Many licensees require the active assistance of the inventor to facilitate their commercialization efforts, at least at the early stages of development. This can range from infrequent, informal contacts to a more formal consulting relationship. Working with a new business startup can require substantially more time, depending on your role in or with the company and your continuing role within the University. Your participation with a startup is governed by University conflict-of-interest policies.

What other types of agreements and considerations apply to technology transfer?

- **Non-Disclosure Agreements (NDAs)** or **Confidential Disclosure Agreements (CDAs)** are often used to protect the confidentiality of an invention during evaluation by potential licensees. NDAs and CDAs also protect proprietary information of third parties that University researchers need to review in order to conduct research or evaluate research opportunities. Princeton University OTL enters into NDAs and CDAs for University proprietary information shared with someone outside the University. The Office of Research and Project Administration (ORPA) manages incoming NDAs and CDAs related to sponsored research contracts.
- A **Material Transfer Agreement (MTA)**, used for incoming or outgoing materials at the University, is administered by OTL. These agreements describe the terms under which University researchers and outside researchers may share materials, typically for research or evaluation purposes. Intellectual property rights can be endangered if materials are used without a proper MTA. There is no requirement at Princeton to use an MTA to share materials with external parties, especially other academic institutions, however it is best to call OTL if you feel there may be intellectual property consequences to sharing the material, if you feel that the materials are a valuable part of an invention, or if sharing the materials may compromise your invention. If you are sending materials to a for-profit company, we encourage you to contact OTL prior to the transfer to assess the need for an MTA.
- An **Inter-Institutional Agreement (IIA)** describes the terms under which two or more institutions (generally two universities) will collaborate to assess, protect, market, license and share in the revenues received from licensing jointly owned intellectual property.

- **Option Agreements**, or **Option Clauses** within research agreements, describe the conditions under which the University preserves the opportunity for a third party to negotiate a license for intellectual property. Option Clauses are often provided in a sponsored research agreement to corporate research sponsors, while Option Agreements are entered into with third parties wishing to evaluate the technology prior to entering into a full license agreement.
- **Research Agreements** describe the terms under which sponsors provide research support to the University. These are negotiated by ORPA. More information about these agreements can be obtained at www.princeton.edu/orpa.

COMMERCIALIZATION

What activities occur during commercialization?

Most licensees continue to develop an invention to enhance the technology, reduce risk, prove reliability and satisfy the market requirements for adoption by customers. This can involve additional testing; prototyping for manufacturability, durability and integrity; and further development to improve performance and other characteristics. Documentation for training, installation and marketing is often created during this phase. Benchmarking tests are often required to demonstrate the product/service advantages (i.e., societal benefit) and to position the product in the market.

What is my role during commercialization?

Your role can vary depending on your interest and involvement, the interest of the licensee in utilizing your services for various assignments, and any contractual obligations related to the license or any personal agreements.

What revenues are generated for the University through commercialization?

Most licenses have licensing fees that can be very modest (for startups or situations in which the value of the license is deemed to warrant a modest license fee) or can reach hundreds of thousands of dollars. Royalties on the eventual sales of the licensed products can generate revenues, although this usually takes many years to occur. Equity, if included in a license, can yield returns, but only if a successful equity liquidation event (public equity offering or a sale of the company) occurs. Most licenses do not yield substantial revenues.

A recent study of licenses at U.S. universities demonstrated that less than 1 percent of all licenses yield over \$1 million. However, the rewards of an invention reaching the market are often more significant than the financial considerations.

What will happen to my invention if the startup company or licensee is unsuccessful in commercializing the technology? Can the invention be licensed to another entity?

Licenses typically include performance milestones that, if unmet, can result in termination of the license. This termination allows for subsequent licensing to another business.

NAVIGATING CONFLICT OF INTEREST

How does the University define a conflict of interest?

A conflict of interest can occur when a University employee, through a relationship with an outside organization, is in a position to: 1) influence the University's business, research or other areas that may lead to direct or indirect financial gain, 2) adversely impact or influence the employee's research or teaching responsibilities, 3) provide improper advantage to others, to the disadvantage of the University, or 4) use University resources including students, postdoctoral staff, space or equipment to the sole benefit of the company.

When should I seek guidance on conflict of interest?

Whenever a question or uncertainty arises, you should seek guidance from Research Integrity and Assurance (RIA) at www.princeton.edu/ria or via your ORPA project representative for research-related issues. There are two cases in particular when guidance is required: when research proposals are submitted to external sponsors (contact ORPA), and when a license, option or MTA is being considered with a company in which the faculty member, or any University employee, has an equity or management interest (contact RIA).

What kinds of issues concern conflict-of-interest reviewers?

Examples include the appropriate and objective use of research, the treatment and roles of students, supervision of individuals working at both the University and a licensee company, use of space and equipment for company benefit, and conflict of commitment (i.e., your ability to meet your University obligations).

What are examples of a conflict of commitment?

A conflict of commitment may exist if duties, assignments or responsibilities associated with a technology license or outside business arrangement have a negative impact on your ability to meet commitments associated with your University employment or exceed the amount of time available to you for these activities. The best approach is to fully disclose your situation to your chair/dean and discuss the implications for your job responsibilities.

How does the University manage conflict associated with research and technology transfer transactions?

Research Integrity and Assurance representatives can advise you on conflict-of-interest (COI) issues. It is the responsibility of the researcher or faculty member to disclose and document any outside arrangements that constitute disclosable situations or interests as described in University conflict-of-interest policies. Researchers are required to submit, via the COI Reporting System, an Annual Disclosure identifying these situations and/or interest. Please note that there are different disclosure requirements for U.S. Public Health Service-funded researchers. The Conflict of Interest in Research Panel will review these disclosures and determine whether they require a formal management plan. For more information, see www.princeton.edu/ria/conflict-of-interest or “Rules and Procedures of the Faculty of Princeton University and Other Provisions of Concern to the Faculty,” Chapter IV, Section K, www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter4.



REVENUE DISTRIBUTIONS

How are license revenues distributed?

Princeton University OTL is responsible for managing the expenses and revenues associated with technology agreements. Per the University's Intellectual Property Policy and as required by the federal Bayh-Dole Act, revenues from license fees, royalties and equity — minus any unreimbursed patenting and filing expenses — are shared with inventors.

What if I receive equity (stock) from a company?

Under the University's Intellectual Property Policy, inventors who receive equity from a licensee are permitted to share University revenues from the associated agreement.

What are the tax implications of any revenues I receive from the University?

License revenues are typically taxed as Form 1099 income. You should consult a tax adviser for specific advice.

REINVESTMENT AND RELATIONSHIPS

Every year, Princeton University's Office of Technology Licensing (OTL):

- assists with approximately 100+ invention disclosures;
- negotiates between 10 and 20 option and license agreements; and
- assists in forming between two to four new business startups.

These activities generate revenues which are shared among Princeton University departments, inventors and partnering institutions. These revenues are reinvested in additional research and education, thus fostering the creation of the next generation of research, researchers and entrepreneurs.

In addition, the resultant relationships created and deepened with these activities support our University mission. They result in additional research projects, broader educational opportunities and collaborative investments, and an enhanced ability to create, retain and share valuable resources that contribute to our quality of life.

TECHNOLOGY TRANSFER RESOURCES

A number of resources are available to help University inventors learn about the technology transfer process, especially as it pertains to federally funded research.

WEBSITES

United States Patent and Trademark Office: The federal agency for granting U.S. patents and registering trademarks. www.uspto.gov

World Intellectual Property Organization: An agency of the United Nations dedicated to developing a balanced and accessible international intellectual property system. www.wipo.int

Princeton University Patent Policies: Princeton University's patent policy is described in "Rules and Procedures of the Faculty of Princeton University and Other Provisions of Concern to the Faculty," Ch. VIII. Conduct of Research. Section D. Intellectual Property. www.princeton.edu/dof/policies/publ/fac/rules_toc/chapter8/#intellectualproperty

Association of University Technology Managers (AUTM): A professional organization devoted to promoting technology transfer between universities and industry. www.autm.net/Tech_Transfer.htm

The Bayh-Dole Act: This federal law, known as the Patent and Trademark Act Amendments of 1980, enables universities to retain title to inventions made under federally funded research programs. www.autm.net/Bayh_Dole_Act/5222.htm

Licensing Executives Society: An independent, professional organization that facilitates global IP commerce through education, networking, standards development and certification. www.lesusacanada.org

BOOKS

"Managing University Intellectual Property in the Public Interest": A publication of the National Research Council. National Academies Press. 2010. www.nap.edu/openbook.php?record_id=13001

NOTES



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