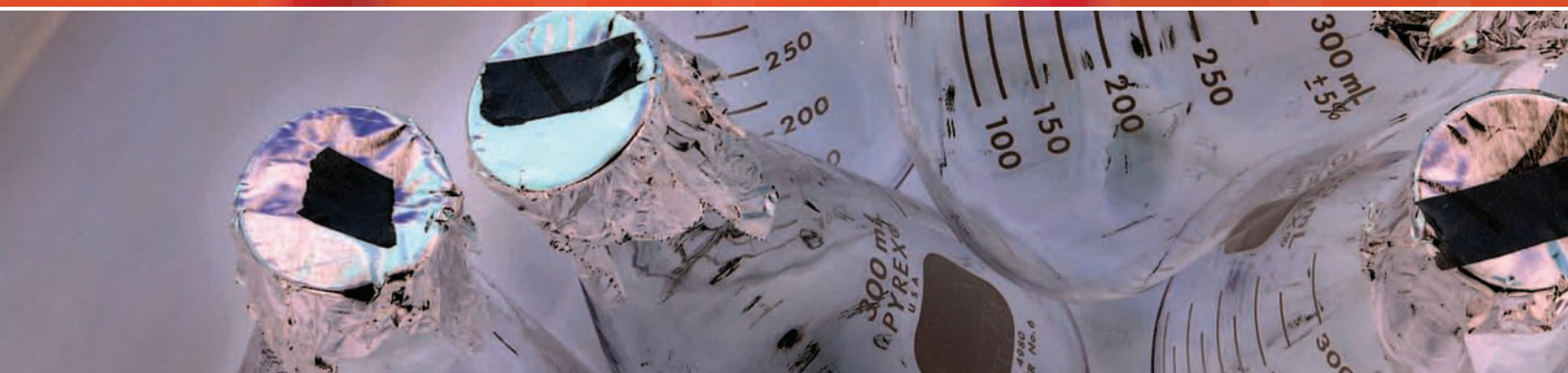


NC STATE UNIVERSITY

An INVENTOR'S GUIDE to TECHNOLOGY TRANSFER



Office of Technology Transfer



MISSION

NC State’s Office of Technology Transfer is dedicated to bringing faculty, staff and student inventions and technologies to the marketplace to create benefits for NC State, the community and the general public.

We’re at your service.

NC STATE OFFICE OF TECHNOLOGY TRANSFER
Campus Box 8210
Raleigh, NC 27695-8210
Phone: 919.515.7199
Fax: 919.515.3773
www.research.ncsu.edu/ott

The NC State Office of Technology Transfer would like to thank and acknowledge the University of Michigan Office of Technology Transfer for providing the template and starting material for this Inventor’s Guide.
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CONTRIBUTE

A Message from Our EXECUTIVE DIRECTOR

The NC State Office of Technology Transfer (OTT) strategically manages all intellectual property generated by the research enterprise. By building partnerships with NC State innovators, entrepreneurs and industry, we help facilitate the transfer of technology that benefits society and enriches lives.

It is exciting, meaningful work. The creative spirit of NC State faculty, staff and students never ceases to amaze me, along with their commitment to our mission.

In order to maintain our quality of life and a sustainable future, NC State needs to continue to nurture a culture of creativity that ensures that our dynamic research enterprise is working on the “Grand Challenges” of the world. We are committed to planting the seeds today for the products of the future.

BILLY B. HOUGHTELING
Executive Director, Office of Technology Transfer

to our Quality of LIFE

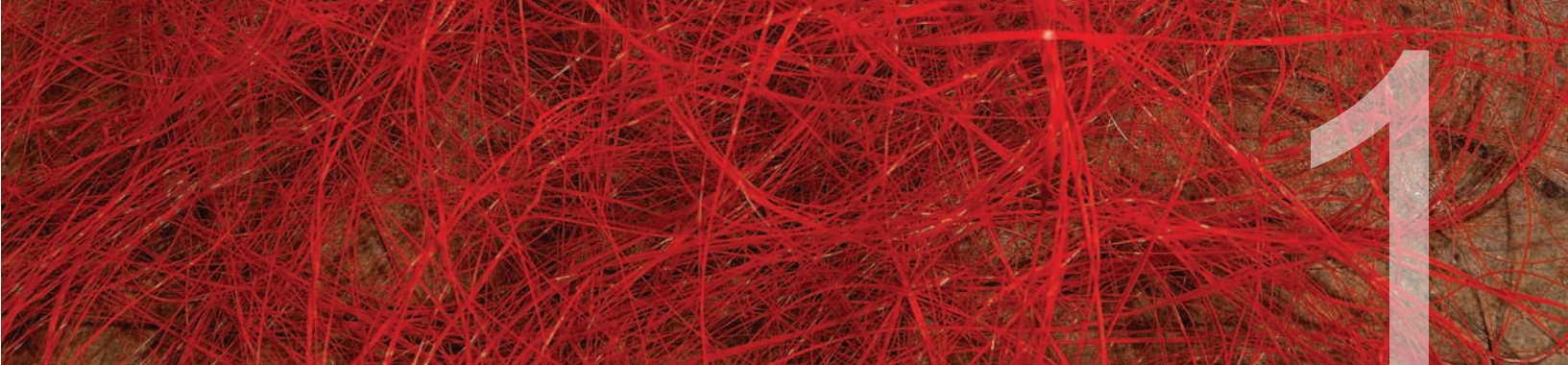


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An Inventor’s Guide to Technology Transfer outlines the essential elements of technology transfer at NC State.

This guide is organized to answer the most common questions we typically field from our research community and provides a broad overview of the technology transfer process and services available.

For more information, visit www.research.ncsu.edu/ott or call the Office of Technology Transfer at 919.515.7199.

Formal explanations of NC State policies concerning technology transfer can be obtained from the University’s Policies, Regulations, and Rules, which supersedes any conflicting information presented in this guide.

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Technology Transfer OVERVIEW

What is technology transfer?

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

What is NC State Technology Transfer?

The Office of Technology Transfer is an NC State service unit composed of specialists in licensing, business development, and legal matters who are experienced in transferring technologies from the physical sciences, life sciences, information and computer sciences, and other disciplines. We are responsible for strategically managing invention disclosures submitted by faculty, staff and students from all colleges, departments and units on NC State's campus.

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

Reasons are unique to each researcher and may include:

- Making a positive impact on society
- Feeling a sense of personal fulfillment
- Achieving recognition and financial rewards
- Generating additional lab or departmental 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. NC State grants its rights in the defined technology and/or the associated patent rights to a third party for a period of years, often 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 start-up. Licenses include terms that require the licensee to meet certain performance obligations and to make financial payments to NC State. These payments are shared with the inventors and are also distributed to colleges, departments/units, and central administration 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 non-profit institutions to own 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.

How do I work with the NC State's Office of Technology Transfer?

We encourage you to contact the Office of Technology Transfer (OTT) during your early research activities to be aware of the options that will best leverage the commercial potential of your research. OTT staff are trained to assist you with questions related to marketability, funding sources, commercial partners, patenting and other protection methods, new business start-up considerations, NC State policies and procedures, and much more.

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 often occur simultaneously. A Licensing Associate is assigned to assist you throughout this process. We're here to serve you.

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.

Making a *positive*
IMPACT on society

How can I help in this process?

- Call the OTT at 919.515.7199 when you believe you have created or discovered something unique with potential commercial or research value.
- Complete and submit the NC State Disclosure Form (submit disclosure at research.ncsu.edu/ott/for-inventors/resources/) before publicly disclosing your technology or submitting a manuscript for review and publication.
- To avoid risking your patent rights and possibly hindering the opportunity to market your invention, contact the OTT before holding any discussions with individuals outside the NC State community.
- On the NC State 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% of all licenses are executed with commercial entities known by the inventor, so your contacts can be extremely useful.
- Respond to the OTT and outside patent counsel requests. While 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.
- Keep the OTT informed of upcoming publications or interactions with companies related to your intellectual property.

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Feeling a sense of *personal*
FULFILLMENT

RESEARCH CONSIDERATIONS

and Material Transfer Agreements

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

Yes. Patent rights, however, are affected by these activities. It is best to submit an Invention Disclosure Form (see page 5) well before communicating or disclosing your invention to people outside NC State. There are significant differences between the U.S. 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 OTT Licensing Associate assigned to you of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal submission, dissertation/ masters thesis, publication, or other public presentation including the invention.

May I use material or intellectual property from others in my research?

Yes. It is important to document carefully the date and conditions of use so that we can determine if this use may influence the ownership and license rights of your subsequent research results.

If you wish to obtain materials from outside collaborators, an incoming Material Transfer Agreement (MTA) should be completed. Contact the Office of Technology Transfer for more information on incoming MTAs or send an e-mail to mtacda@ncsu.edu.

Will I be able to share materials, research tools or intellectual property with others to further their research?

Yes. It is important to document items that are to be shared with others and the conditions of use. If you wish to send materials to an outside collaborator, an outgoing Material Transfer Agreement (MTA) should be completed for this purpose. It also may be necessary to have a Confidential Disclosure Agreement (CDA) completed to protect your research results or intellectual property. Contact an Office of Technology Transfer representative to assist you in completing outgoing MTAs or CDAs.



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

The Sponsored Project Agreement (SPA) should specify the Intellectual Property (IP) rights of the sponsor. NC State 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. Often, sponsored research contracts allow the sponsor a limited time to negotiate a license for any patent or intellectual property rights developed as the result of 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 SPARCS (Sponsored Programs and Regulatory Compliance). SPARCS project managers work closely with the OTT on IP issues in Sponsored Project Agreements.

If you have questions about sponsored research, please contact the SPARCS project representative responsible for the sponsor.

See www.ncsu.edu/sparcs or call 919.515.2444.

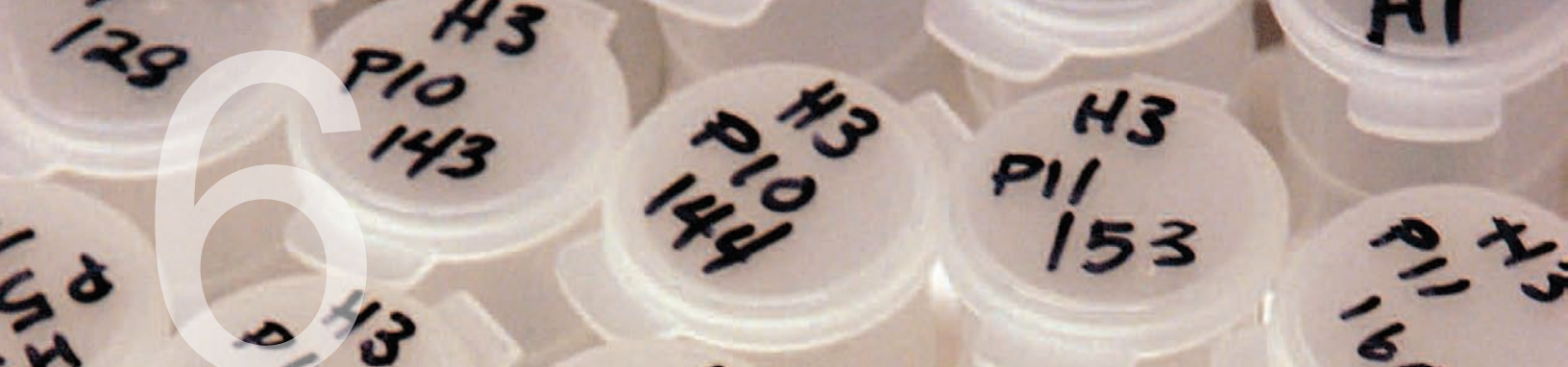
What about consulting?

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 NC State.

Researchers who enter into consulting agreements should familiarize themselves with the policies of their college and department relevant to consulting activities. The researcher is expected to ensure that the terms of the consulting arrangement are consistent with NC State policies, including those related to IP ownership, employment responsibilities and use of Intellectual Property.

The OTT is available to provide informal advice on how your consulting agreement relates to NC State Intellectual Property.

A discussion regarding consulting and conflict of interest can be found at http://www.ncsu.edu/general_counsel/legal_topics/consulting-faqs.php.



ACHIEVING recognition and financial rewards

INVENTION DISCLOSURES

What is an Invention Disclosure Form?

An Invention Disclosure Form (IDF) is a written description of your invention or development submitted to the NC State Office of Technology Transfer. The IDF should list all collaborating sources of support and include all of the information necessary to begin pursuing protection, marketing, and commercialization activities. This document is treated as “Confidential.”

Based on the IDF, the OTT may generate a non-confidential description of your invention in order to assist in marketing the technology. Once potential partners have been identified, and confidential disclosure agreements have been signed, more detailed exchanges of information can occur.

Why should I submit an Invention Disclosure Form?

When you disclose your invention to the OTT, it starts a process that could lead to the commercialization of your technology. This may involve beginning the intellectual property protection process and identifying commercialization 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 exist for industry-sponsored projects as well.

How do I know if my discovery is an invention?

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

When should I complete an Invention Disclosure Form?

You should complete an IDF whenever you feel you have discovered something unique with possible commercial value. This should be done well before presenting the discovery through publications, poster sessions, conferences, press releases, or other communication.

Once publicly disclosed (i.e., published or presented in any form), an invention may have restricted or minimal potential for patent protection. Differences exist between the U.S. and other countries on the impact of early publication and public disclosure on seeking patent protection.

Be sure to inform the OTT of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal, dissertation/masters thesis, publication, or other public presentation including 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 to others.

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 to generate revenue.

If you have research tools that you believe to be valuable, or wish to provide to others (including research collaborators), the OTT will work with you to develop the appropriate protection, licensing, and distribution strategy.

How do I submit an Invention Disclosure Form?

The Invention Disclosure Form is completed and submitted electronically at research.ncsu.edu/ott/for-inventors/resources/.

New invention disclosures are assigned as they are received to an OTT Licensing Associate.

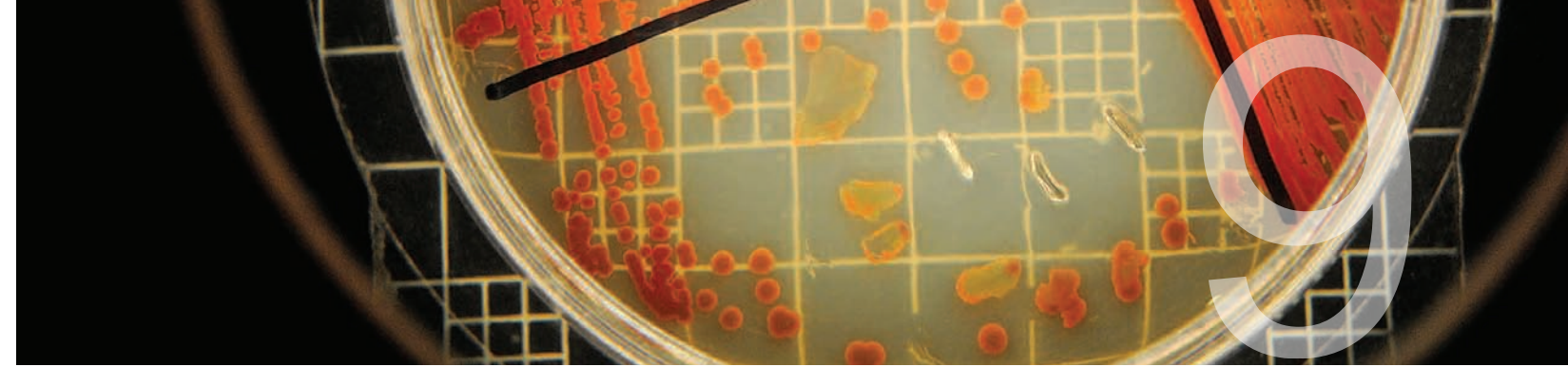
If you have any questions, call the OTT at 919.515.7199 or email us at techtransfer@ncsu.edu.

Who is considered an inventor for the purposes of technology transfer?

An “inventor” is an individual who has made a contribution to the conception of an invention. Inventorship is determined by United States patent law.

FOR MORE INFORMATION:

www.uspto.gov



OWNERSHIP of Intellectual Property

What is “intellectual property”?

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

Who owns what I create?

Ownership depends upon the employment status of the creators of the invention and their use of NC State facilities/resources. Considerations include:

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

As a general rule, NC State owns inventions made by its employees while acting within the scope of their employment or using more than incidental NC State resources.

NC State's copyright policy describes the applicable rules for copyrightable works: www.provost.ncsu.edu/copyright/ownership/ncsu.php.

In some cases, the terms of a Sponsored Project Agreement or Material Transfer Agreement may impact ownership. When in doubt, it is best to call the OTT for advice.

What is NC State's policy on ownership of inventions?

The policy is codified in NC State POL 10.00.1 available at www.ncsu.edu/policies/research/POL10.00.1.php.

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, the OTT is available for informal advice.

Who owns rights to discoveries made while on sabbatical?

Generally, if you are on a paid sabbatical from NC State, NC State still retains rights to any discoveries connected to your scope of employment. Contact the OTT or SPARCS before your sabbatical to ensure that ownership considerations are documented.

Should I list visiting scientists or scientists at other institutions on my Invention Disclosure Form?

All persons that may have contributed to the ideas leading to a discovery should be mentioned in your disclosure, even if they are not NC State employees or students. The OTT, along with legal counsel, will determine the rights of such persons and institutions. It is prudent to discuss with the OTT 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 work on inventions at NC State under a wide variety of circumstances. NC State promotes student innovation and entrepreneurship. Typically, a student will own his or her rights to an invention unless the invention was created by a student in a capacity as a NC State employee (graduate student, research assistant, etc.) and/or the student used more than incidental NC State resources.

FOR MORE INFORMATION:

www.ncsu.edu/ott

www.ncsu.edu/policies/research/POL10.00.1.php

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ASSESSMENT of an Invention Disclosure

How does NC State assess Invention Disclosures?

Licensing Associates in the OTT evaluate each invention 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 (IP), 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 business start-up.

If the inventors believe that all IP should be licensed non-exclusively to all potential users for the public good, will NC State honor our request?

NC State's OTT will work with you to develop the appropriate commercialization strategy for the invention. Some technologies lend themselves to non-exclusive licensing (licensing to multiple third parties), while others will only reach the commercial marketplace, and therefore the public, if they are licensed on an exclusive basis. We will try to accommodate inventors' commercialization wishes. The final decision will be determined by our assessment of which strategy will produce the most benefits for the general public, consistent with governmental or institutional policies and other obligations.

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

Generally, NC State supports software developers who choose to distribute their programs/developments through open source mechanisms, provided that NC State retains the right to distribute the program freely, that open sourcing is consistent with obligations to sponsors, and that each developer's unit supports the decision. Developers should seek authorization from an appropriate department chair or dean before committing to an open source distribution.

Is an invention ever assigned to an Inventor?

Yes. On occasion, an inventor may request that NC State transfer rights to an invention back to the inventor(s). If the OTT decides not to pursue patent protection or chooses not to actively market the invention, an inventor may make a request to have rights transferred. Reassignment of inventions funded from U.S. government sources requires the government's prior approval before transfer of rights.

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Meeting the obligations of a research CONTRACT

PATENTS and Other Legal Protection

What is a patent?

In the U.S., 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 numbered paragraphs drafted by patent attorneys that provide 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 modifications that offer substantial 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 patent attorney prosecuting the application.

Who is responsible for patenting?

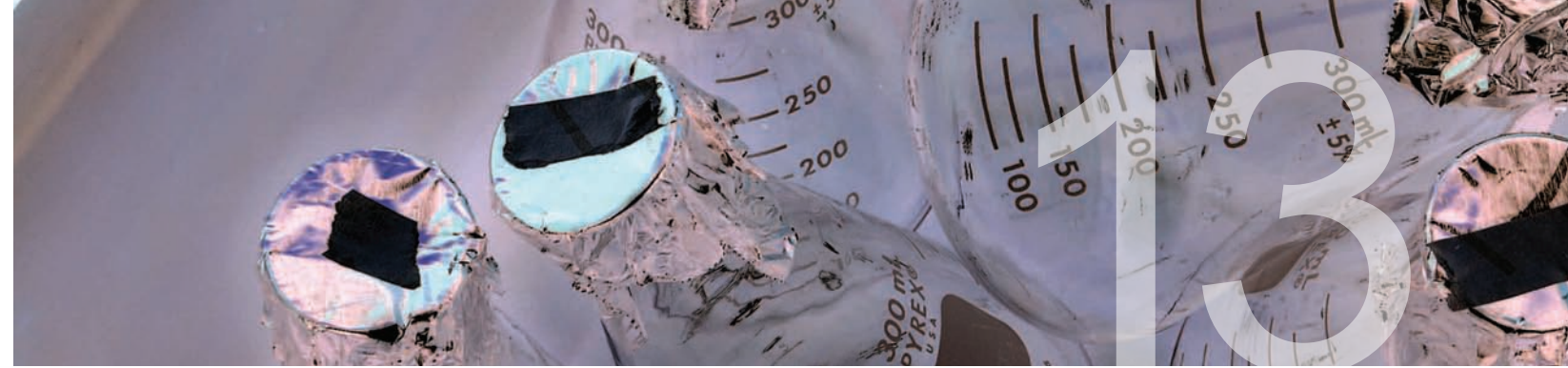
The OTT contracts with outside patent counsel for IP protection, assuring access to patent law professionals with expertise in diverse technology areas. Inventors work with the patent counsel in drafting the patent applications and responses to patent offices in the countries in which patents are filed. NC State Licensing Associates will help with the selection and oversight of the outside patent counsel.

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An inventor takes part in the

CONCEPTION

of the ideas



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). The patent attorney/agent generally will 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 NC State.

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

If the application is rejected, the patent attorney/agent must file a written response, usually within three to six months. Generally, the attorney may amend the claims and/or point out why the patent office's position is incorrect. This procedure is referred to as patent prosecution. Often it will take two Official Actions and two responses by the patent attorney/agent, and sometimes more, before the application is resolved.

The resolution can take the form of a notice that the application is allowable; in other words, the patent office 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 patent office holds patent applications confidential until published. The USPTO publishes applications 18 months after initial filing. In the U.S., the entire process will typically take up to three to five years.

Is there such a thing as a provisional patent?

No. However, there is a provisional patent application.

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 priority 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 often needs 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 individual 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.

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.

What is gained by filing an application under the PCT?

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.

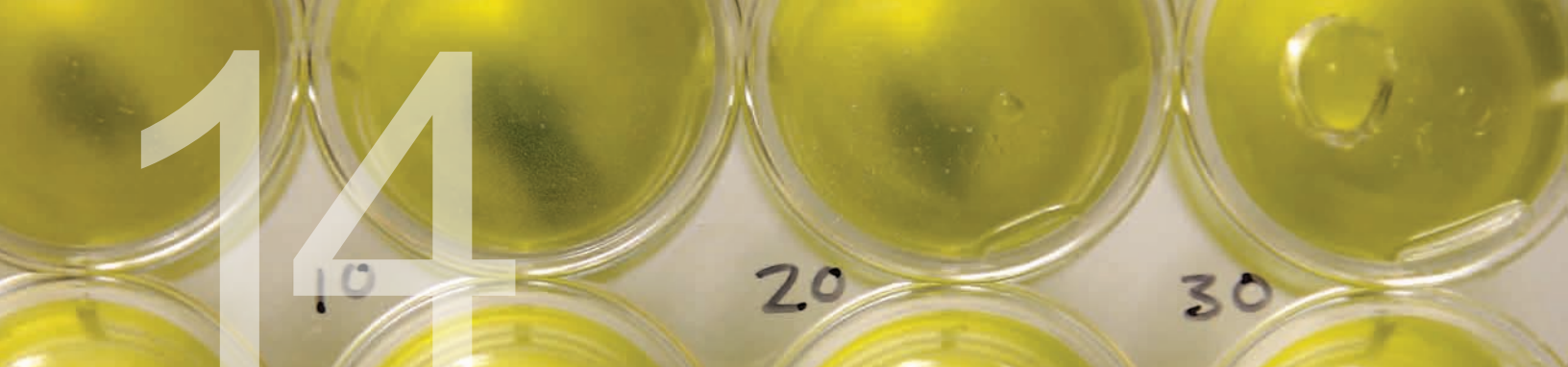
What is the timeline of the patenting process and resulting protection?

Currently, the average U.S. utility patent application is 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 mandated maintenance fees are paid.

Why does NC State protect only 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 the expense and the length of time required to obtain a patent, patent applications are not possible for all NC State inventions. 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 protection for as many promising inventions as possible.

c o n t i n u e d



Trademarks and service marks are BRAND names

Who decides what gets protected?

The OTT and the inventor(s) together discuss relevant factors in deciding whether to file a patent application. Ultimately, the OTT makes the final decision as to whether to file.

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

Filing a regular U.S. patent application may cost between \$7,000 and \$13,000. 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 \$20,000 or more per country. Also, once a patent is issued in the U.S or in foreign countries, certain government maintenance fees are required to keep the patent active.

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

If you created the invention under a sponsored project or consulting agreement with a company, the OTT 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 propose 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 any 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 NC State initiate or continue patenting activity without an identified licensee?

Depending on the commercial viability of a technology, NC State may file 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 patent coverage).

What is a copyright and how is it useful?

Copyright is a form of protection provided by the laws of the United States to the 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 Copyright Act generally gives the owner of the 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, or video. In some instances, NC State registers copyrights, but generally not until a product is ready for distribution.

How do I represent a proper University copyright notice?

Although copyrightable works do not require a copyright notice, we recommend that you use one. For works owned by NC State, use the following template: Copyright © 20XX by North Carolina State University.

How can I learn more about University copyright policies?

If you have additional questions about a potentially copyrightable invention, please contact the OTT. If you have questions about other copyright policies, please visit the Administrative Regulation on Copyright Use and Ownership: www.ncsu.edu/policies/research/POL10.00.1.php.

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

In short, trademarks and service marks are brand names. 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. 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.

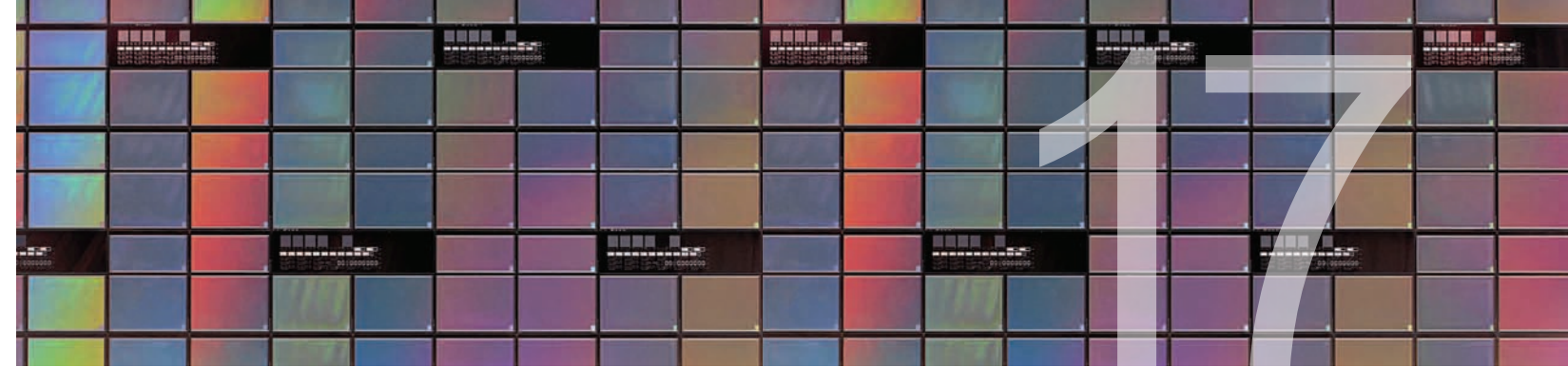
What is trademark registration?

Trademark registration is a procedure in which the United States Patent and Trademark Office (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.

FOR MORE INFORMATION:

www.ncsu.edu/ott and www.uspto.gov



Considerations for a START-UP COMPANY

What is a start-up company and why choose to launch one?

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

- development risk (often companies in established industries are unwilling to take the risk)
- potential for multiple products or services from the same technology (few companies survive on one product alone)
- sufficiently large competitive advantage and target market
- potential revenues sufficient to sustain and grow a company

The OTT uses this information, working with inventors and others, to identify the most appropriate licensing partner(s), whether established businesses or new startups.

Who decides whether to form a start-up?

The choice to establish a new company for commercializing IP is a joint decision made by the OTT and the inventors. If a new business start-up is chosen as the preferred commercialization path, the OTT will assist you and the other founders in planning and executing the process.

What role does an inventor usually play in a company?

NC State faculty typically serve as technology consultants, advisors or in some other technical developmental capacity. Rarely do faculty choose to leave NC State and join the start-up.

In many cases, the faculty role is suggested by the start-up investors and management team, who identify the best role 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 start-up must be disclosed in your conflict of interest statement. Student inventors and post-docs may choose to join the start-up upon graduation but rarely have the experience or business skills to serve as the company's sole management.

For more information on Conflicts of Interest, please see www.ncsu.edu/sparcs/coi.

How much of my time and effort will it take?

Starting a company requires a considerable amount of time and effort. Until the start-up 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 NC State accept equity in the company?

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

Will NC State pay for incorporating a start-up company?

No. As a separate entity, the start-up must pay for its own legal matters, including all business incorporation matters and licensing expenses.

What legal assistance is needed in creating a start-up?

In addition to corporate counsel, the start-up 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 start-up's counsel must be separate from NC State counsel, though it is advisable and recommended that the corporate IP Counsel and the NC State patent counsel coordinate activities. Also, it is wise for inventors to have agreements regarding their roles with the start-up reviewed by their own counsel to ensure that all personal ramifications, including taxation and liabilities, are clearly understood.

What is New Venture Services?

New Venture Services provides a network for entrepreneurs, links to funding opportunities, investors and management teams, and support to faculty and student inventors and entrepreneurs. It also leads the "NC State Fast 15," a portfolio of promising projects that will receive customized support from the University's innovation network. This support includes mentoring by experienced entrepreneurs, business launch planning, executive searches, and increased visibility to ensure that local investors are familiar with NC State start-up investment opportunities.

Are there other special programs to assist NC State inventors?

Yes. The OTT administers the Chancellor's Innovation Fund (CIF), which provides proof-of-concept funding for research discoveries. The goal is to strengthen the commercial potential of intellectual property disclosed to the OTT. Up to \$75,000 may be awarded to a project. The CIF process is competitive with award winners chosen by a selection committee composed of NC State staff, successful entrepreneurs, and funders. Proposals are submitted on an annual schedule. Only inventions disclosed to the OTT are eligible.

FOR MORE INFORMATION:

www.ncsu.edu/ott

MARKETING to Find a Licensee

How does The OTT market my inventions?

Licensing Associates use many sources and strategies to identify potential licensees and market inventions. Sometimes existing relationships of the inventors, the OTT 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 market 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% of licensees are known to the inventors. Thus, research and consulting relationships are often a valuable source for licensees. Licensees are also identified through existing relationships of the OTT staff. Our licensees often license more than one technology from NC State. We attempt to broaden these relationships through contacts obtained from website posting inquiries, market research, industry events and the cultivation of existing partnerships.

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 in the early stage in the development cycle and thus require substantial commercialization investment, making it challenging 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 or exclusively to several companies, each for a unique field-of-use (application) or geography.

LICENSE 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 NC State. NC State 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 NC State.

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 start-up company is a better option. It is rare for NC State to have multiple potential licensees bidding on an invention.

What can I expect to gain if my IP is licensed?

Per University policy, a share of any financial return from a license is provided to the inventor(s).

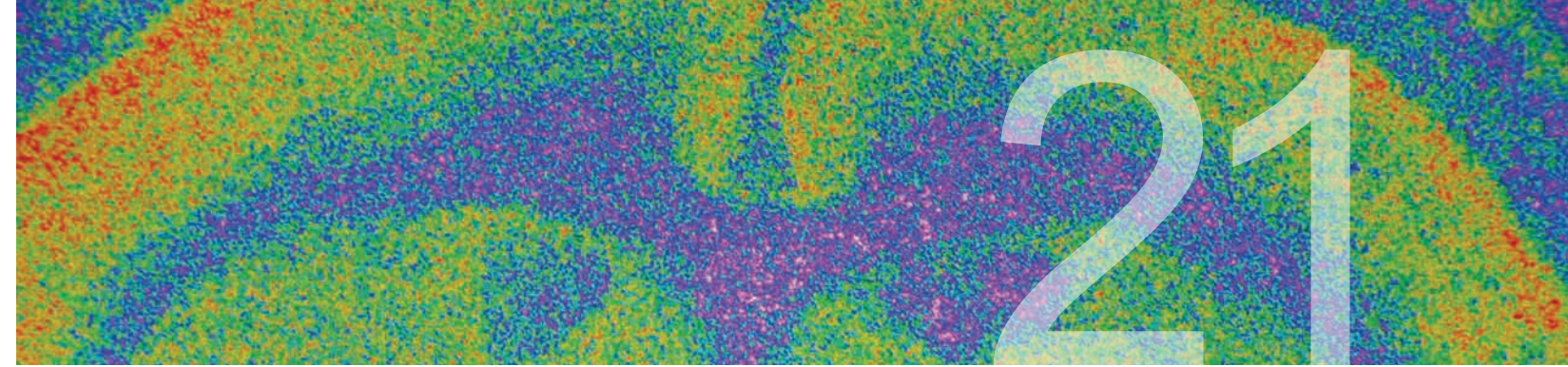
FOR MORE INFORMATION:

<http://www.ncsu.edu/policies/research/REG10.00.3.php>

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.

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 start-up can require substantially more time, depending on your role in or with the company and your continuing role within NC State. Your participation with a start-up is governed by University conflict of interest policies and the approval of your supervisor.



COMMERCIALIZATION

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

- Confidential Disclosure Agreements (CDAs) are often used to protect the confidentiality of an invention during evaluation by potential licensees. CDAs also protect proprietary information of third parties that University researchers need to review in order to conduct research or to evaluate research opportunities. The OTT enters into CDAs for University proprietary information shared with someone outside of NC State.
- Material Transfer Agreements (MTAs), used for incoming and outgoing materials at NC State, are administered by the OTT. 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.

- Inter-Institutional Agreements (IIAs) describe 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 NC State preserves the opportunity for a third party to negotiate a license for intellectual property. Option clauses are often provided in a Sponsored Project Agreement to corporate research sponsors or Option Agreements are entered into with third parties wishing to evaluate the technology prior to entering into a full License Agreement.

Sponsored Project Agreements (SPAs) describe the terms under which sponsors provide research support to NC State. These are negotiated by SPARCS.

FOR MORE INFORMATION:

www.ncsu.edu/sparcs

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 and to position the product in the market.

What is my role during commercialization?

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

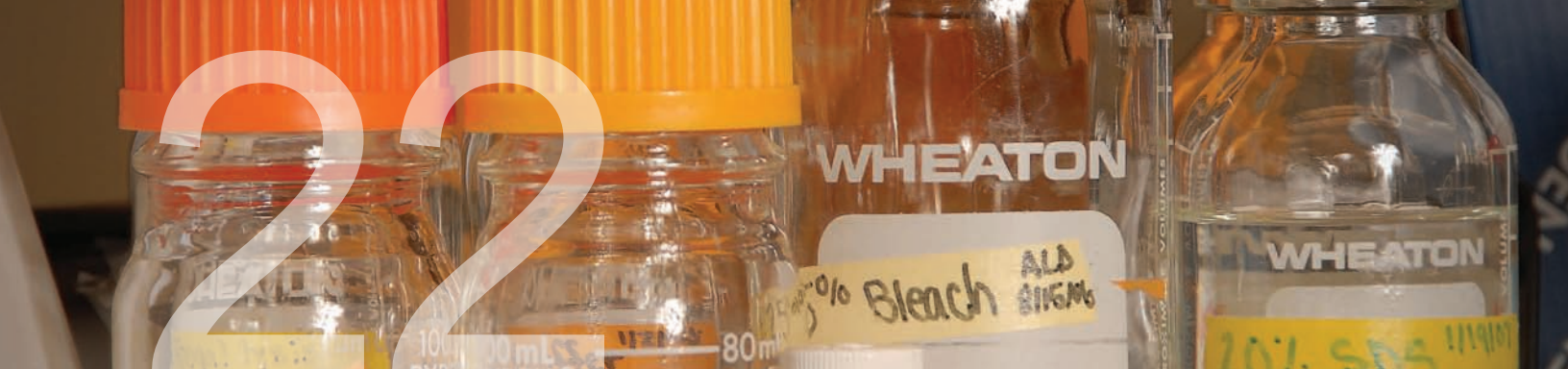
What revenues are generated for NC State if commercialization is successful? If unsuccessful?

Most licenses have licensing fees that can be very modest (for start-ups 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 can take 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 only 1% of all licenses yield over \$1 million. However, the rewards of an invention reaching the market are often more significant than the financial considerations alone.

What will happen to my invention if the start-up 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.



CONFLICT OF INTEREST

How does NC State define a conflict of interest?

A conflict of interest can occur when a University employee or their family members, through a relationship with an outside organization, is in a position to: 1) influence NC State's business, research or other areas that may lead to direct or indirect financial gain; 2) adversely impact or influence one's research or teaching responsibilities; or 3) provide improper advantage to others, to the disadvantage of NC State.

When should I seek guidance on conflict of interest?

Whenever a question or uncertainty arises, you should seek guidance from your SPARCS project manager for research-related issues and/or your OTT Licensing Associate for license-related issues. There are two times in particular when guidance is required: when research proposals are submitted to external sponsors (SPARCS) 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 (OTT).

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 NC State and a licensee company, 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 supervisor and discuss the implications for your job responsibilities.

How does NC State manage conflict associated with research and tech transfer transactions?

SPARCS can advise you on conflict of interest 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. All conflicts should be disclosed including providing a Notice of Intent (NOI) for any instances where you can be compensated by a third party for providing services.

Forms and procedures can be found at www.ncsu.edu/sparcs/coi.



REVENUE DISTRIBUTION

How are license revenues distributed?

The OTT is responsible for managing the expenses and revenues associated with technology agreements. Per University Policy and Regulations, revenues from license fees, royalties and milestone fees, minus any unreimbursed patenting, marketing, and administrative expenses, are shared with inventors.

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

Under NC State Policy, individual inventors who receive equity from a licensee are permitted to share University revenues (those not related to equity) from the associated agreement. Inventor equity and University equity are negotiated separately and held separately.

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

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

How are inventor revenues distributed if there are multiple inventors and/or multiple inventions in a license?

Revenue is typically divided equally among inventors (standard equal distribution). While there may be some variation in the procedure, the OTT distributes revenue based on the patent rights associated with an invention. All requests related to a change in the standard equal distribution to inventors, should be submitted to the OTT in writing.

REINVESTMENT + RELATIONSHIPS

Every year, the OTT, working with our NC State inventors and business partners:

- Assists with approximately 150 invention disclosures
- Negotiates over 70 Option and License Agreements
- Assists in forming four to five new business start-ups

The licensing revenues received are shared among NC State colleges, departments and units, inventors and partnering institutions. These revenues are reinvested in additional research and education, thus fostering the creation of the next generation of research, commercialization opportunities, innovators, and entrepreneurs.

These partnerships 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.

To learn more about the Office of Research, Innovation and Economic Development, please visit:
www.research.ncsu.edu.



[BRILLIANT] Ideas:



[PROFOUND] Thoughts:

INVENTION, it must be humbly admitted,
does not consist in creating out of void, but out of chaos.
— *Mary Wollstonecraft Shelley*

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We're at your service.