



Inventors^{and} Innovators

handbook



ILLINOIS STATE
UNIVERSITY
Illinois' first public university

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This handbook was adapted from materials first developed by the Office of Technology Management at the University of Illinois at Urbana-Champaign.

Introduction

There are many innovators engaged in development of new technologies at Illinois State University throughout the University's seven colleges. These creations take many forms: new mobile applications or drug detection analyses, educational activities, laboratory devices, and many more. In the past, these innovations may have not received the necessary support to facilitate maximum use to, therefore, provide a greater public benefit to the people of Illinois and beyond. It is the goal of ISU's Technology Transfer Office (TTO) to change this.

Providing professional assessment, marketing, and development expertise requires significant time and resources. It is untenable for ISU to be able to build the incredible experience, expertise, and infrastructure of an established and successful technology transfer office overnight, but that does not mean innovators at ISU cannot have access to similar resources in the meantime.

It gives me great pleasure to announce a partnership between the Technology Transfer Office at Illinois State University and the Office of Technology Management (OTM) at the University of Illinois at Urbana-Champaign. OTM has graciously agreed to allow ISU-owned innovations access to a network of professionals that make OTM one of the global leaders in technology transfer. This handbook will describe many of the resources now available to ISU innovators.

This handbook is intended as a resource for the ISU community that provides fundamental information about intellectual property, ISU's IP policies and practices, and the resources available to support ISU innovations. This handbook also details the prominent role of the creators in the process of creating a useful product or service from ISU intellectual property.

Cory Abernathy
Technology Transfer Office



The Bayh-Dole Act

The Bayh-Dole Act, adopted in 1980, was established to promote economic development by allowing small businesses and nonprofit organizations (including universities) to own inventions made under federally funded research programs. Under the act, universities are:

- Responsible for the management of inventions in compliance with the terms of the Bayh-Dole Act
- Expected to file patent applications on inventions they elect to own
- Encouraged to collaborate with commercial concerns through licensing, to promote the utilization of inventions arising from federal funding
- Expected to give licensing preference to small businesses

The Bayh-Dole Act sets the stage for university participation in technology transfer activities. The government retains certain rights, which include requiring use of licensed inventions to prevent sequestering, requiring U.S. manufacture for exclusive licenses, and retaining non-exclusive rights for government purposes.

Sponsored Research

The work of the Office of Research and Sponsored Programs (RSP) is often the first step in the technology transfer process, since it is responsible for university research agreements involving government and corporate sponsors.

Externally sponsored agreements often define the role of the sponsor in the commercialization process. RSP reviews the intellectual property terms in such agreements to ensure the interests of the University and the researcher are addressed. RSP consults with TTO when such agreements involve existing intellectual property being managed by TTO or when the intellectual property terms of the agreements are non-standard.

Because RSP and TTO work closely together, it is sometimes unclear which office to call when an intellectual property issue comes up. The list below gives general guidelines for each office's area of responsibility.

Benefits of Technology Transfer

- Leverages the University's technologies to benefit society
- Strengthens the University's education and research programs
- Assists in recruiting and retaining faculty, staff, and students
- Supports the growth and development of the Illinois and U.S. economies
- Builds enduring connections between the University, industry, and public agencies

Areas of Responsibility: RSP vs TTO

RSP

- Externally sponsored research agreements
- Non-disclosure agreements involving University research (company and University proprietary information being exchanged)
- Materials transfer agreements—inbound, covering materials being transferred by third parties into the University for use in University research programs
- Materials transfer agreements—outbound, covering University materials transferred to colleagues and others outside of the University
- Technical testing agreements
- Visiting scientist agreements
- Facilities use agreements

TTO

- Non-disclosure agreements involving TTO-managed intellectual property
- Inter-institutional agreements covering the development of IP jointly owned by two or more universities
- Options
- Evaluation agreements
- Licenses

Through ISU's agreement with OTM at UIUC, ISU innovators have access to many additional technology transfer services. Below is a list of services now available to ISU researchers through OTM.

Resources Available through UIUC's OTM

OTM Resources

- Invention assessment
- Patent background and guidance
- Copyright/Trademark background and guidance
- Guidance for marketing innovations
- Guidance for creating mobile apps
- Support for agreements
 - Non-disclosure
 - Material transfer
 - Options
 - Licenses
- Inter-Institutional agreements

Research Park Resources

Business Plan Competitions
Funding your Small Business
SBIR Technical Assistance Program
SBIR/STIR Funding
Designer-in-Residence
East Central Illinois University Center
Enterpriseworks Affiliate Program
Entrepreneur Email Announcements
Entrepreneur in Residence Program (EIR)
How To Make A Pitch Presentation
I-Start Professional Service Assistance
Legal Issues in Tech Entrepreneurship
NSF I-Corps at the University of Illinois
Small Business Consulting Resources
Starting a Company
Research Park events

Description

Source of competitions at UIUC
Funding sources
Support for creating grant applications
Explains SBIR/STIR
Industrial Designer helps startups
Local partnership promoting tech transfer
Low cost program at Enterprise Works
Mailing list
Free start-up advice
EIR created Power Point
Program provides money for startup tools
Link to variety of legal issue info files
Program paying startups to learn marketing
Links to local consulting services
Resources for company formation
Offer s many events for entrepreneurs

Other

IllinoisVENTURES
UCAN (Urbana-Champaign Angel Network)

State of Illinois-owned venture capital firm
Local angel investor network

Intellectual Property

Defining Intellectual Property

Intellectual property encompasses all forms of creativity such as inventions, software, discoveries, creative or artistic works, know-how, processes, and unique materials. For example, intellectual property may be machines, devices, instruments, computer programs, circuits, biological materials, chemicals, books, videos, photographs, paintings, sculptures, or songs.

Intellectual property is protected by law through patent, copyright, trademark, and trade secrets. Multiple forms of protection may be used on the same piece of intellectual property. For example, computer software can be protected by copyright, patent, trade secret, and trademark. Intellectual property is also protected through agreements which control access and use of the intellectual property.

Copyright ownership and invention ownership are different. While the author or authors own the copyright in a manuscript or paper describing an invention (because it qualifies as a traditional academic work), the University owns the underlying invention or software described in that paper.

University Ownership

Patentable Research

The University will normally own all inventions created by University employees within the scope of their employment. The University also claims any patentable subject matter created by any persons, whether or not University employees, making substantial use of University resources as defined in section 2.7 of Intellectual Property Policy 4.1.10 (IP Policy).

Copyrightable works

Subject to the exceptions outlined in this policy, the University does not claim ownership of copyrightable works such as those defined as traditional academic copyrightable works in section 2.8 of the IP Policy or student theses and dissertations in section 2.9. If there are no specific written agreements or policies to the contrary (e.g. Works for Hire covered under Section 3.2.2), a creator is free to dispose of the rights to these works in the manner of the creator's choosing

Note, however, if the University specifically commissions the creation of such work, it is not necessarily considered a traditional academic work. One example is when the University provides dedicated funding for the creation of a specific online course. Ownership of such works belongs to the University, and a written agreement outlining this ownership arrangement is required.

Student Ownership

Undergraduate students likely own their intellectual property because in most cases, students are only using University resources that are usually and customarily provided. Examples of resources customarily provided to students are office space, dorm rooms, library facilities, and ordinary access to computers and networks. Ownership of intellectual property created through student entrepreneurship activities will also be retained by the students, even if they utilize limited University resources. In academic courses where students create copyrightable or patentable subject matter, students will retain ownership provided that the only University resources were those routinely made available by the college or department to all students enrolled in the courses. In all other cases, including student activities sponsored by external entities or students working as part of a faculty-led research team, a written agreement outlining ownership should be signed by all parties prior to beginning the work.

Illinois State University will typically only claim ownership of student creations if the invention incorporates, depends upon, or is derived from other ISU-owned intellectual properties.

Student Entrepreneurship

Illinois State University encourages entrepreneurship among everyone on campus—including students. In fact, the University offers various programs, courses, competitions, mentoring opportunities, support programs, and many other resources geared especially toward student entrepreneurship.

Student Entrepreneur Programs

Means Center Accelerator Program

This is an ongoing, year-round program that offers its members mentoring, (provided by both outside interests and by discipline-specific professors here at ISU), in-kind goods and services donated by local community businesses such as legal services, accounting services, advertising services etc., access to the Bloomington-Normal Angel Investor Network here in town, and grants of \$3,000 to \$5,000 for budding ISU student businesses.

Startup Showcase

This is an annual competition involving the opportunity for ISU students who are budding entrepreneurs to showcase their fledgling enterprises, win valuable prizes, and participate in community networking. This event grows every year, and first-through fourth-place winners are automatically offered membership in the Means Center Accelerator Program.

Small Business Field Studies Program

This is a program offered through an academic course for ISU students to be exposed to local business issues, learn consulting, and work on solutions for these issues. This program is offered through MQM 326—Small Business Field Studies.

ISU Coleman Fellows Program

This is an ongoing, year-round program involving professors from all across the ISU campus that seeks to spread entrepreneurship across campus. Currently the group is responsible for creating and staffing an additional course, IDS 113—The Entrepreneurial Mindset.

For more information on intellectual property created by students, see the earlier section on student ownership.

George R. and Martha Means Center for Entrepreneurial Studies
State Farm Hall of Business Room 214
Illinois State University
Campus Box 5580
Normal, Illinois 61790-5580
Phone: (309) 438-2994
Business.IllinoisState.edu/means

Patents

Inventions and Patents

An invention is a device, method, composition, or process made by man, as long as it is new, useful, and not obvious. Inventions may include many types of discoveries and technological innovations such as processes, methods, machines, articles of manufacture, devices, chemicals, and compositions of matter. Inventions can be protected by patents.

The U.S. Constitution recognizes the value of innovation to the economy and provides the owner of a patent with a time-limited monopoly (20 years) to stop others from exploiting the invention. In exchange for this exclusive right, the published patent document must fully describe the invention in a way that allows others to reproduce and learn from it. In that way, the patent monopoly provides an incentive to share advances with the public and, thereby, contributes to growth in the field.



Inventorship

A patent application must be filed in the names of the true inventors. Inventorship is defined by U.S. patent law. Broadly, an inventor is one who alone or together with others conceived the ultimate working invention. Inventorship is not a reward for hard work to someone who only worked under direction. Inventorship is tied to the claims in a patent application and is determined at the time the patent application is filed. As the claims in an application change, so may inventorship.

Ownership

Inventorship does not equal ownership. Generally, organizations own the inventions developed by their employees during the course of their employment. Illinois State University's patents are owned by the University's Board of Trustees in accordance with Intellectual Property Policy 4.1.10.

Patent as property

A patent is property like a house or car that may be sold, leased, or rented to others for royalties. Patent rights are often transferred to others for commercialization through licensing rather than outright sale. The patent owner can decide how to allow others to use his or her property and can divide up rights in the property in different ways. For example, exclusively or nonexclusively, by field of use, or by geographical region.

The standards test of patentability

For an invention to be patentable, it must meet the following three criteria for patentability:

New or novel

The invention must be different from all known inventions, products, and published ideas. This does not mean that every aspect of an invention must be entirely new or novel. You can selectively patent new aspects if they pass the following two tests.

Non-obvious

The invention cannot be an obvious or a logical extension of known ideas or inventions. It cannot be readily apparent to a person skilled in the field of the invention.

Useful

The invention must work and have a practical application or utility. It is also possible to patent an improvement to existing inventions, if the improvement meets the above criteria. Furthermore, the patent application must fully enable someone to make and use your invention. This is called enablement.

Inventions that are not patentable include laws of nature, theories, scientific principles, pure algorithms, and perpetual motion machines.

Publication and public disclosure

Publication and other public disclosure of an invention by anyone, including the inventor, if it occurs before a patent application is filed, may prevent the ability to obtain a patent.

What constitutes a public disclosure?

A public disclosure is any oral or written communication to others that is not confidential and either teaches the invention completely or provides enough information to make development of the invention obvious. In the U.S., a public disclosure may be any written document accessible by others such as manuscripts, abstracts, websites, meeting notes, or presentations. Simply telling a colleague that you have made an invention but not telling how to make or use it is usually not considered a disclosure that could prevent you from obtaining a patent.

Being first

Not infrequently, two entirely different groups invent the same or very similar inventions. What happens then? In most of the world, including the U.S., the first inventor to file a patent application is entitled to the patent. This is referred to as a first-to-file system.

Prior to March 2013, U.S. patent law held that the inventor who could document that he or she was the first to conceive an invention was entitled to a patent. This is referred to as a first-to-invent system. The America Invents Act changed the U.S. patent system from first-to-invent to first-to-file.

To help avoid losing patentability due to public disclosure or not filing first, contact your TTO as early as possible in the invention process.



Patentable Inventions

Research conducted at the University can lead to inventions that may be patentable. A few examples are:

- **Mechanical Innovations:** laboratory instruments, machinery, semiconductors and chips, manufacturing techniques, process improvements, nanotechnology, circuits, sensors, lighting, filtration, and micro-devices
- **Agriculture:** grain and food processing, germplasm and plant varieties, precision equipment, devices, and nutrition
- **Biotechnology:** genetic promoters, genetic markers, gene transfer methods, expression vectors, and microorganisms
- **Chemistry:** new compounds, new drugs, drug targets, drug design, separation methods, coatings, additives, superconductors, metals, polymers, and fuel cells
- **Software and Algorithms:** methods and processes in computer programs, operating systems, networking, data mining and storage, security, and supercomputing

Timing

The average pendency of a patent application in the U.S. is between two and four years. Inventors in the biotechnology and computing fields, however, should expect longer waiting periods.

Cost

Currently filing and obtaining U.S. patents generally costs between \$20,000 and \$30,000. Filing and obtaining patents in other countries may cost \$30,000 or more per country. Maintenance fees or annuities are also required at 3 1/2, 7 1/2, and 11 1/2 years in the U.S. and more frequently in foreign countries, but costs can vary depending on the number and types of claims.

Inventor's Notebook

The inventor's notebook is one of the best ways to establish intellectual property ownership.

Keeping a Notebook

Laboratory notebooks documenting one's research are almost always kept to support publications. In the case of applying for a patent, it is recommended to keep the notebooks in a more structured way so they can be relied upon as evidence to support invention entitlement.

Content

The notebook should be a dated, written record of all experiments, results (even if the significance is unclear), conversations (including who you talked to and what topics you talked about), thoughts, and future directions of investigations.

Certification

A credible witness who is not a family member or notary public should be chosen for his or her knowledge and ability to read and understand the concepts and principles in the notebook.

Patents and freedom to operate

Having a patent doesn't necessarily mean you have the right to practice your invention and make products covered by it. Commercializing a technology can involve many processes, methods, and materials that may not be covered under your patents, but may be covered under patents owned by others. The owners of these

other patents may have the right to stop you from commercializing your invention unless you obtain their permission to practice under their patents. Obtaining rights to all the intellectual property needed to commercialize a technology without infringing the intellectual property rights of others is called freedom to operate.

Having a patent doesn't necessarily mean you have the right to practice your invention and make products covered by it.



Patent Application Process

Obtaining a U.S. patent starts with the filing of a non-provisional patent application that includes a specification describing how to make and use the invention and one or more claims that define the scope of the invention. If challenged, the claims are used by courts to determine if an invention and patent have been infringed.

This application is filed in the United States Patent and Trademark Office (USPTO) and assigned to a patent examiner who specializes in the particular technology area. The examiner considers the scope or breadth of the claims against prior patents and publications. The examiner then issues an office action accepting (rarely) or rejecting (typically) the claims (some or all) as not distinguishing over what is already known. In the case of claim rejections, the patent attorney, with the assistance of the inventor, may rebut the examiners' arguments and/or responds with modifications (amendments) to the claims. Two to three iterations are typically required to obtain allowance of the patent application. Once issued, generally a patent has a life of 20 years from the filing of the first regular patent application. In the U.S., maintenance fees are required at 3½, 7½, and 11½ years to keep the patent in force. A provisional application can be filed in the U.S. before the regular application to stake a claim to an invention. This type of application does not require claims or get examined and becomes abandoned within one year of filing unless it is converted to a regular U.S. application or a Patent Cooperation Treaty (PCT) application within one year of filing. It is often used to extend patent life for an additional year.

A PCT application is an international place-holder application filed in the home country of the inventor that reserves the right to file in the U.S. and many foreign countries at a later time. Just like provisional applications, PCT applications will never issue as a patent and will become abandoned if they are not converted to regular applications in the U.S. and each foreign country in a timely manner. The first U.S. application can be filed in the USPTO either as a provisional, regular, or PCT application.



Patent Decisions

Decisions to file a patent application are made by the Associate Vice President (AVP) for Research with the guidance of the IP Committee and the TTO and with contributions from the inventor. These are business decisions based on market considerations, necessity of protection, probability of success in licensing and recovering expenses, and potential market impact.

Periodically the TTO reviews the patent portfolio and in cases where the patent is not licensed the TTO assesses whether to continue prosecution or maintenance.

Patent decisions

The TTO pursues U.S. patents on a variety of innovations. University technologies are usually very early stage and well in advance of being ready for the market. The TTO evaluates technologies that may not be patentable, may not provide an exclusionary position, are in a technology area that has been unsuccessfully pursued before, or are in a market area where investment cannot be justified. The TTO will use this evaluation to provide recommendations to the AVP for research.

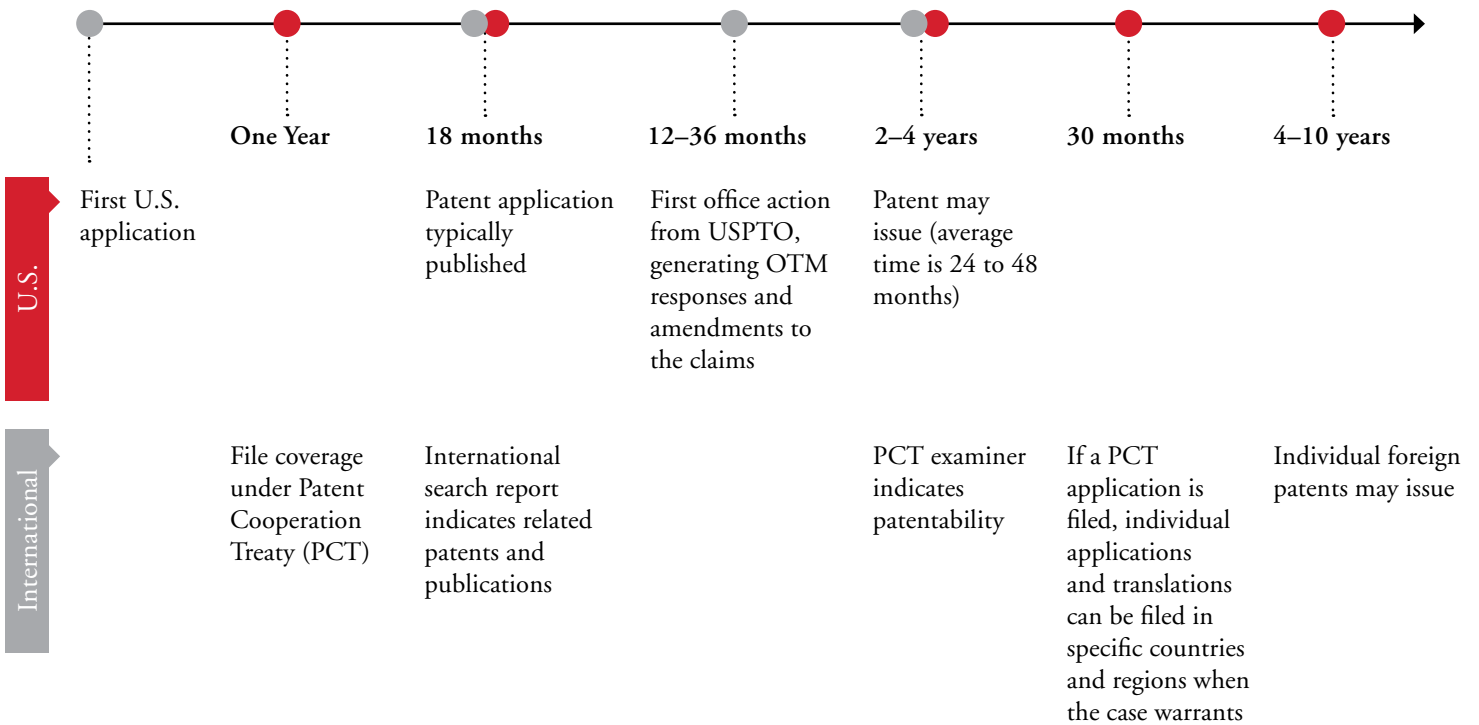
International patents involve escalating expenses, and as a consequence, the University may be more selective in decisions to file international applications than U.S. applications.

Converting a PCT application into a specific foreign country or regional application (or filing in those countries directly without having filed a PCT application) has much greater cost implications than the decision to file in the U.S. This is primarily because of the combination of the country-by-country amplification effect and the necessity for translations and additional attorneys. Furthermore, because the laws in foreign countries vary with respect to the value patent protection affords the owner, the value of foreign protection may be less than the corresponding value in the U.S.



U.S. and Foreign Patent Application Timeline

● U.S. ● International



Copyright and trademark

Copyright

Copyright is the form of intellectual property that protects the expression of a creative idea that is fixed in a tangible form. It is like an acknowledgment of who created the work.

For example, in *The Wizard of Oz*, copyright protectors the order of the words in the story, as well as the layout of pictures, colors, and words on the page. The ideas, the plot, or the characters are not protected. Each adaptation of this classic tale (book, screenplay, movie, music) generates independent copyrighted works.

For scientific writings, copyright does not protect the procedures, systems, processes, concepts, formulas, discoveries, or devices described in the work. Similarly, for software, copyright does not protect the underlying concepts, processes, systems, algorithms, program logic, or layouts.



Copyright is literally the right to copy, which includes the right to display, perform, distribute copies, and make changes to the original copyrighted work. Changed versions of a work are known as derivative works. A copyright provides the owner with the right to determine how the work is copied and distributed to others, such as through traditional or online publication, open access, sale, lease, or lending. Copyright owners also determine what fee is charged for access to their work.

Copyright is literally the right to copy, which includes display, perform, distribute copies, and make changes to the original work.

What can I copyright?

Copyrightable

Literary works: books, poems
Computer software: object code, source code
Music: notes, words, sound recordings
Plays: dances, pantomimes
Art: paintings, graphics, sculptures
Motion pictures

Not Copyrightable

Ideas or concepts
Factual information
Listings without originality (phonebook)
Titles or short phrases
Type styles
Public domain information
Slogans

Copyright applies automatically

Unlike patentable inventions, copyrighted works are automatically protected under U.S. copyright laws without having to undergo a formal registration process. However, it is still important to affix an appropriate copyright notice so others are aware that they are not free to use the work without permission. Works owned by the University should bear the following copyright notice: © 20XX The Board of Trustees of Illinois State University. All rights reserved.

There is also a formal registration process to document copyright in the Library of Congress. Author-owned copyrights last for the life of the author plus 70 years after the last surviving author's death. Employer-owned copyrights lasts for 120 years from creation or 95 years from the first publication of the work, whichever is shorter.

Trademarks and Service Marks

Trademarks and service marks are distinctive words or symbols used to identify the brand or origin of the goods or services provided. The trademark is not the name of a specific product but distinguishes the product from others and identifies quality. It can be suggestive, descriptive, and arbitrary but not generic. To qualify for a trademark, the mark must be used consistently on products in the marketplace. If the mark is used so often that it becomes generic, it loses the ability to identify the source of the product and is no longer entitled to trademark protection.

The TTO may work with University Marketing and Communications to file trademarks on marks associated with intellectual property when such marks have already become well known and their association with the University's research enhances the value of the intellectual property.

Trademark Examples

Logos: Apple®, Nike swoosh, McDonald's arches

Names: Xerox, Kleenex, Coca Cola®, Beer Nuts, Kodak

Color/Sound: Pink-Corning insulation, NBC chimes

Slogans: Have you driven a Ford Lately?®; Like a good neighbor, State Farm is there.

Marks must remain distinctive

Ever wonder why you are asked whether you want Pepsi® or Coca Cola®? It is so that the trademark remains connected to the brand and does not become a generic term for the type of goods. An owner must be diligent in protecting use of the trademark, or over time, the mark becomes generic and is no longer enforceable. Examples of marks that are no longer enforceable include Aspirin, Crock Pot, and Hoola Hoop.



For more information on patents, copyrights, and trademarks, visit the United States Patent and Trademark Office website at www.uspto.gov. or the U.S. Copyright Office at www.copyright.gov.

Technology Transfer Process

The TTO

The TTO is responsible for managing the intellectual property generated by research and innovative activities at Illinois State University. The TTO is assisted in this endeavor through collaboration with The Offices of Technology Management at the University of Illinois. Through this collaboration, innovators at ISU gain access to numerous resources that would otherwise be unavailable to them.

The intellectual property committee is comprised of members representing each college and includes various staff as well as a student representative. This committee acts in an advisory capacity to the associate vice president for research and graduate studies to help inform patenting and licensing decisions involving ISU intellectual property.

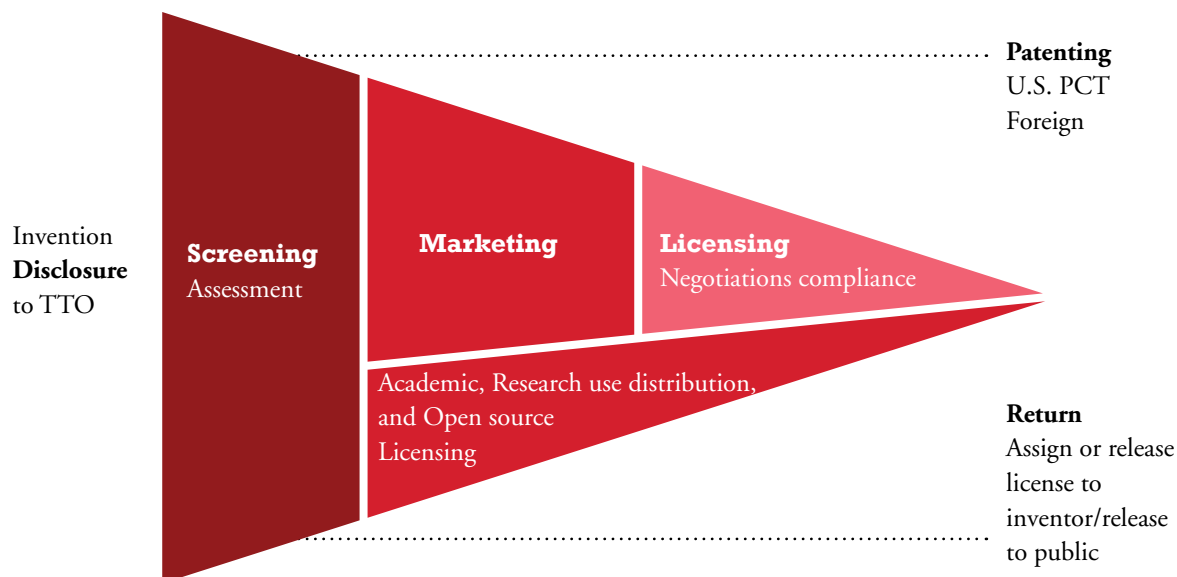
Intellectual property disclosures/reports of research discoveries

The TTO actively reaches out to faculty to encourage disclosures of new innovations. A disclosure is a written statement outlining a new innovation and documenting the circumstances of its development. The disclosure also identifies potential applications and what companies might be interested in licensing the IP if that information is known. Disclosure forms can be found on the TTO's website at Research.IllinoisState.edu/ip.

Disclosure forms help the TTO begin the process of evaluating the technology transfer potential for the intellectual property and to ensure compliance with the obligations under the Bayh-Dole Act. Submitting a disclosure form to the TTO does not by itself protect the intellectual property. Only a patent or a copyright can do that. Also, disclosure to the TTO is confidential and subject to applicable laws. It is not considered a public disclosure under patent law. A disclosure to someone outside the University is a public disclosure unless you have a confidentiality agreement. The TTO will meet with the inventor to discuss the disclosure and gain a more complete understanding of its attributes before submitting the disclosure to the OTM for further assessment. The IP committee will use this assessment to help inform a recommendation to the Associate Vice President for research regarding patenting.

Screening evaluation/assessment

Through the screening review process, the decision to pursue or abandon commercialization efforts for a technology is made. Within six to eight weeks of receiving a disclosure, OTM's staff completes a business-case analysis called a screening evaluation, with a recommended course of action on commercialization. The results of the screening evaluation, which include patent searches, marketplace analysis, and identification of possible licensees are then discussed with the TTO and the inventors. The disclosure, and the assessment by the OTM, is then presented to the IP Committee. This committee will present a recommendation to the associate vice president for research who will determine if ISU will pursue patent protection and commercialization efforts.



Patenting decisions

For technologies ISU decides to patent, an initial patent strategy is identified. In most cases, an independent patent law firm would be hired to prepare and prosecute the patent application.

Market assessment

Detailed analyses, sometimes through the engagement of outside consultants who connect with industry experts, add to the TTO's understanding of the potential market for the technology and help determine further patenting and marketing actions. Inventors themselves often help enormously in finding interested licensees because they have many contacts through their own research.

Release license or assign to inventor

If ISU decides not to pursue or to discontinue pursuit of commercialization efforts on an innovation, the University may release the invention or assign its ownership rights to the inventors if the inventors are interested in pursuing a patent and commercializing the innovation independently. For federally funded inventions, the federal agency must approve the assignment, which may take a few weeks or months to finalize.

Marketing (seeking partners)

Working with OTM staff, the TTO may engage in a variety of marketing activities to advocate for University research and intellectual property. Considerable time and resources are devoted to understanding market needs and contacting potential partners either to license existing technologies or to cultivate relationships, such as sponsored research, that may lead to licenses. The best tools to market a technology vary from industry to industry, therefore a variety of methods may be used depending on the situation and technology. These activities may include:

- showcasing University technologies to venture capitalists, investors, and corporate representatives through OTM- or ISU-hosted events on campus and around the country

Technology transfer Q & A



Q: Can I still publish my findings?

Yes, findings can still be published, and disclosure to the TTO do not alter your publication timetable. However, because publishing can affect the ability to obtain a patent, it is best to submit a disclosure prior to publishing or communicating your findings in a public forum.

Q: When should I submit a disclosure?

It is best if inventors submit a disclosure between eight and 12 weeks before publication so that, if necessary, actions can be taken to protect both U.S. and foreign rights. Once publicly disclosed, an invention may not be patentable. To be safe, inform the TTO of any imminent or prior presentations that include the IP.

Q: What is my role in the screening process?

Inventors typically meet with TTO and OTM staff to discuss the invention and clarify aspects of the disclosure. Once a decision is made by the IP committee on whether to pursue patenting, the inventor will be contacted to discuss the outcome.

Q: What is my role in patenting?

Inventors and the TTO speak with the patent attorney during the patenting process. Also, inventors will need to review drafts of documents, as well as sign assignments and other legal documentation. The TTO will guide the inventors during the process.

- attending tradeshows and professional meetings
- making calls and sending collateral materials
- producing brochures and sell sheets
- maintaining websites
- sending press releases
- using social media to cultivate contacts
- creating campaigns to promote a portfolio of technologies
- hosting events on campus so that inventors can get to know our services

Finding partners often takes time, since many University innovations are on the cutting edge and well in advance of the needs of the marketplace. The TTO works with the OTM, inventors, and others to determine the best time to market a technology.

Marketing-related agreements (pre-licensing)

Once a potential corporate partner is identified for a technology, non-disclosure agreements are used to protect the confidentiality of non-public information subject to applicable laws. Materials transfer agreements and evaluation agreements may be used to provide companies with certain rights to use the technology for short-term evaluation purposes only.

Option agreements reserve the right of a company to negotiate a commercial license. Options may be stand-alone agreements negotiated directly through the TTO, or they may be clauses contained in other agreements such as sponsored research agreements or the above pre-licensing agreements.

If intellectual property is developed by more than one institution, an inter-institutional agreement is often negotiated to set out the terms under which the two universities will cooperate to assess, protect, market, license, and share revenues from the jointly owned property.

Licensing

A license is an agreement granting some of the University's rights as owner of an intellectual property (licensor) to a company has agreed to certain obligations and responsibilities to commercialize the intellectual property (licensee). The University licenses its varied technologies (patents, software, databases, and copyrights) to companies demonstrate the capability and commitment to develop the early-stage innovations into commercial products. Sometimes both the inventors and the University agree that the best entity to bring a technology to market is a startup company.

Whether the licensee is an existing company or a startup, licensees also demonstrate such commitment by providing a written technology development plan to the University. This plan should include, but not be limited to: a description of the technologies to be licensed, the resulting product, market analysis, a product development timeline, and the company resources committed to development. The terms of the license are negotiated based on the licensee's plan.



Technology transfer Q & A

Q: What is my role in marketing?

Inventors are encouraged to work closely with the TTO and the OTM to market their invention. Inventors are often quite involved in the early stages of recruiting commercial partners and licensees, as the inventor's expertise is often critically important. This involvement includes exchanging information and materials, and sometimes results in further sponsored research (often referred to as pre-licensing agreements). Inventors are often involved in crafting the details of such pre-licensing agreements.

Q: What is my role in licensing?

Licensing is the primary function of the TTO, and inventors will be informed of progress. Inventors often are closely connected to others in their field and may be consulted by the TTO on the business terms of the license.

Further, the inventor's role in licensing is an extension of their role in marketing since their expertise is often critically important to transfer the technology and related know-how to the licensee. The University license places only nominal obligations on the part of the inventor to assist in the transfer of the licensed technology. When more than minimal time and effort are necessary, the licensee will negotiate a separate consulting arrangement with the inventor.

Q: What effect does a license have on my ability to do research?

You can still continue research using a licensed invention, even if it is exclusively licensed. The University will always retain the right to use licensed inventions in academic research and teaching.

Q: What if an industry partner funded my research and invention?

The TTO will review the terms of the contract, send a copy of the disclosure to the company, determine the company's interest, and take action based on the company's decision.

License compliance

After a technology is licensed, the TTO manages the license to ensure all terms and conditions are adhered to and the technology reaches its fullest potential. If the licensee does not comply, steps may be taken to terminate the license, in which case the invention would be available for licensing to another company.



License negotiations

The licensing process typically begins with negotiations with interested industry partners, including startup companies in which term sheets summarizing the essential business terms of the licensing agreement are exchanged. Below are the types of business terms generally addressed.

Scope of License Rights

License rights such as exclusive, non-exclusive, field of use limitations, and territory limitations are established to be commensurate with the licensee's product development plans and the market. The University's licensing objective is to obtain the most widespread use of its technologies.

License Fee

Together with the royalties and other monetary terms, the value is based upon the scope of the license rights and the market value of the technology licensed.

Royalties

Royalties are paid by the licensee when products or services that require the use of the technology are sold. Royalties can be expressed as a percentage of sales or a fee per selling unit. Royalty rates vary according to the industry, the significance of the invention, and the base upon which the royalty is applied (e.g. unit, component, subsystem).

Sublicense Sharing

Exclusive licenses usually provide the licensee with the right to sublicense or authorize others to make, use, and sell the University's technology to facilitate widespread use. Revenues received by the licensee from sublicenses are shared with the University.

Minimum Royalties

Minimum royalty payments are established to encourage diligence in sales of products or services requiring the use of the technology.

Patent Reimbursement

Recovery of the costs incurred for protecting the technology in the U.S. and other countries is part of the license.

Performance (Diligence) Milestones

University technologies often require a significant period of time and effort in product development before they are ready for the market. During the development phase, licensees are required to provide periodic reports and meet specific milestones in order to retain a license, especially an exclusive license.

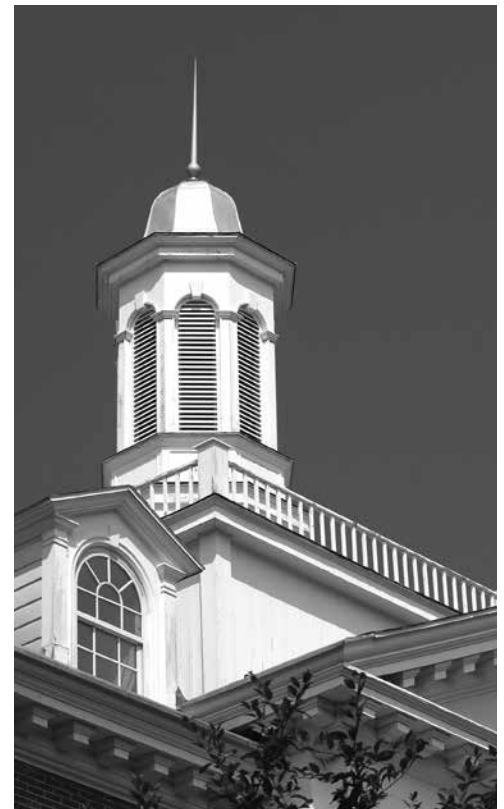
Revenue sharing

When an invention, software, or other intellectual property are successfully licensed or commercialized, the net revenues are shared with inventors and creators. Generally inventors receive 40 percent of revenue after deducting expenses (such as costs for protecting the intellectual property) and the University receives 60 percent. The portion that ISU retains will be reinvested into the academic enterprise at ISU.

Agreed allocations are formalized in a proceeds-distribution agreement. The proceeds-distribution agreement also addresses the shares among multiple departments or units, using the recommendation of the inventors and the concurrence of the associated departments or unit heads.

How is Equity distributed?

Equity from a license is shared with inventors when it is cashed in by the University. The money is distributed according to the proceeds-distribution agreement, under the same sharing formula as royalties.



When choosing between academic, creative commons, and open source licensing, the TTO can assist creators in deciding which option is the best for their specific situation.

Other Methods of Innovation Transfer

Certain types of intellectual property, such as copyrighted software, copyrighted content, and biological materials, are commonly disseminated to the public through ways other than traditional licensing on a royalty- or revenue-generating basis. The TTO handles more than just traditional licensing and, in fact, works with faculty and staff across all departments to help disseminate university-owned copyrighted works, software, data, code, materials, and research results outside the University for greater impact.

Academic and research use, creative commons licensing, and open source licensing

Other common ways of transferring University intellectual property include:

- Academic and Research-Use licenses: often used for software, biological materials, and data sets; allows uses by other institutions for academic purposes only
- Creative Commons licenses: often used for literary and artistic works; has a matrix of options for both academic and commercial uses
- Open Source licenses: often used for software; makes source code freely available for commercial and non-commercial use under certain conditions



All of the previous licenses retain copyright for the creator and stipulate proper attribution. Even though such transfers and dissemination do not generate revenue for the University, they promote visibility and public use of University research and potentially aid in the University's mission for public good.

When choosing between academic, creative commons, and open source licensing, the TTO can assist creators in deciding which option is the best for their specific situation.

Academic and Research-Use licenses permit research institutions or individual researchers to use a program or material free of charge or at a research-use rate, but do not permit those institutions to transfer the software or materials to third parties or make commercial use out of the technology. Such research-use licenses also leave open the possibility of future traditional revenue-generating commercial licensing.

Creative commons licenses are a matrix of licensing allowing free use and sharing (redistribution) of a copyrighted work with proper attribution. The options include whether modifications to the work can be made, whether the work can be used for commercial purposes, and whether further sharing of the work must carry the same options for redistribution.

Open source licenses allow free and less restricted distribution of software, including commercial use, and promote testing and further development and adoption of the software in a collaborative environment. Most federally funded research in software development requires open source dissemination. However, open source licenses may limit future proprietary commercial licensing potential.

Open source Q & A



Q: What is Open Source?

In the software community, Open Source is a forum in which multiple unaffiliated parties have access to the source code of a software program for the purposes of collaborative development. People who participate in the Open Source believe that more scrutiny brings greater reliability, and that software is an evolving entity that can achieve its fullest potential without the restrictions of commercial sale.

Q: What's my role in open source licensing?

As with decisions for publication, the faculty or head of the research program makes the recommendation for open source dissemination. Often, the decision to release code into open source is made early in the software development process: as a condition of the funding, as a requirement of participation in the software community, or as a consequence of incorporating third party code that requires placement in open source.



Starting a company

A startup can be a preferred route for commercialization because it can provide the professional guidance and development needed to demonstrate commercial viability, and thus improve the chances that an early-stage technology reaches the market.

Starting a new company is one way to further develop and commercialize technologies created at Illinois State University. Through ISU's collaboration with the University of Illinois, numerous resources exist to support the development of new businesses commercializing University intellectual property. IllinoisVENTURES is a premier seed and early-stage technology investment firm focused on research-derived companies. It was launched by the University of Illinois and has been consistently named by *Entrepreneur* magazine to its national list of the top 100 venture capital firms. In addition, Research Park and incubation facilities provide the physical space and the environment to foster startups. Startups that incorporate ISU technologies have access to these entrepreneurial support systems.



Many factors are involved in the decision to license a technology to an existing company or to a startup company. Considerations include optimization of stakeholder positions (University, faculty, etc.), improvement of the probability that the technology will reach the market, and techniques to accomplish further commercial development outside the research laboratory.

If you are interested in forming a company to commercialize ISU intellectual property, you may contact the TTO for assistance.

Startup Q & A



Q: What is a startup company?

A startup company is a new business entity created to market a specific invention. It is an alternative to licensing an invention to another already existing company.

Q: What role does the inventor play in the startup company?

The inventor usually serves as a consultant or adviser to the new company. That role may change as the company develops. However, much more time is required early in the process of establishing a company.

Q: What support does the University provide to startups?

The University provides access to resources and services that make startup formation easier, such as IllinoisVENTURES and incubation facilities.

Federal support for small businesses

Federal Support for small businesses

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs provide qualified small businesses, including faculty startups, with opportunities to propose innovative projects that meet specific federal needs. These programs offer more than \$2 billion annually to support the research and technology development of small businesses across the nation. Awards are based on small business qualifications, degree of innovation, technical merit, and future market potential.

SBIR funds support research by businesses with or without academic partners. STTR funds are also awarded to businesses, but recipients must collaborate with a U.S. research institution. The SBIR/STTR programs are structured in three phases, the first two of which are supported by SBIR/STTR funds.

Phase I. The objective of Phase I is to determine the scientific or technical merit and feasibility of the proposed R/R&D efforts. The Phase I period concentrates on the R&D efforts that prove the scientific or technical feasibility of the approach or concept and that which are a prerequisite for further support in Phase II. SBIR Phase I awards are for periods of up to six months in amounts of up to \$150,000. STTR Phase I awards are for periods of up to 12 months in amounts of up to \$100,000.

Phase II. The objective of Phase II is to continue the research or R&D effort initiated

Standard Phase I Process

6 to 9 months

Solicitation Topics

Proposal Submission

Evaluation

Phase I Award

Both the SBIR and STTR programs have specific eligibility criteria for participation.

Small business must fulfill the following criteria to participate in the SBIR program:

- American-owned and independently operated
- For-profit
- Principal researcher at least 51 percent employed by the business, not a full-time faculty member
- Company size limited to 500 employees

Small businesses must fulfill the following criteria to participate in the STTR Program:

- American-owned and independently operated
- For-profit
- Principal researcher need not be employed by small business
- Company size limited to 500 employees

in Phase I with approaches that appear sufficiently promising because of Phase I. SBIR Phase II awards are for periods of up to two years in amounts of up to \$1,000,000. STTR Phase II awards are for periods of up to two years in amounts of up to \$750,000.

Phase III. An objective of the SBIR/STTR program is to increase private sector commercialization of innovations derived from Federal R/R&D. During Phase III, the small business concern is to pursue commercialization with non-SBIR/STTR funds.

While there is no size limit for a nonprofit research institution, the nonprofit research institution must also meet certain eligibility criteria:

- Located in the U.S.
- Nonprofit college or university
- Domestic nonprofit research organization
- Federally funded R&D center

The agencies participating in the SBIR/STTR programs have differing requirements for program involvement, and it is very important to understand and comply with these individual requirements. Each agency publishes a proposal solicitation at least annually. These solicitations can be viewed on their individual websites accessible at www.zyn.com/sbir/.

UIUC Resources

Through collaboration with the Office of Technology Management at UIUC, numerous resources are now available to support ISU innovations. Several of the available resources are described below. To inquire about the availability of any UIUC resources please contact the TTO.

IllinoisVENTURES

The Board of Trustees of the University of Illinois launched IllinoisVENTURES in 2002 to catalyze the creation and development of research-derived technology companies.

Under the guidance of a world-class board comprised of leaders from all phases of the investment community as well as academia, IllinoisVENTURES has created a state-of-the-art environment for new company formation via a unique public/private partnership that is a valuable resource for those interested in starting a company. In 2004 IllinoisVENTURES raised its first venture fund, the Illinois Emerging Technologies Fund, in recognition of the limited presence of seed and early-stage technology investors actively committing capital in Illinois.

To date, IllinoisVENTURES has formed and supported an array of companies in multiple business domains throughout the region. IllinoisVENTURES provides guidance to faculty in early market assessment, competitive analysis, business strategy, and other activities necessary to create high potential, venture-ready businesses. The firm also provides funding through all stages of business creation and development. IllinoisVENTURES has offices in Champaign and Chicago.

University of Illinois Research Park

- 2013 Three College-Town Incubators to Watch by *Inc. Magazine*
- 2013 Twelve Business Incubators Changing the World by *Forbes*

Additional Resources from EnterpriseWorks Urbana

- Startup Café events with successful company founders
- Allied agency status for companies with the University
- Research support services from the Vice Chancellor for Research
- CEO roundtable dinners for networking and peer-to-peer support
- Entrepreneur pro bono legal services

About IllinoisVENTURES

- **\$65 million total assets under management**
- Stage: Origination and early-stage venture capital

Building on University, State, and Private Investment

- **Attracted \$650 million**
- **Created more than 450 third party co-investment in holdings—over 13:1 leverage**
- Consultative interactions with over 3,000 technologies since 2002
- Invested over \$45 million in 75 companies, often acting as co-founder
- Focus: Research-derived investment opportunities
- Industries: Information technology, physical and life sciences, cleantech
- **Ranked #1 in gap funding for third-party capital attraction by Innovosource**
- Geography: Illinois and the Midwest

Research Parks and Incubator Facilities

University-associated research parks and incubators at Urbana-Champaign and Chicago support and nurture the growth of early-stage companies, encourage research and development collaboration between the University, private industry, and public agencies and attract established companies that benefit from close working relationships with University faculty and students. These research parks provide critical infrastructure space for early-stage companies that require wet and dry laboratory capacity for product research and development.

University of Illinois Research Park and Enterpriseworks

The Research Park at the University of Illinois at Urbana-Champaign provides an on-campus environment where technology-based businesses can collaborate on research and development with faculty and students, as well as enjoy access to the campus' vast intellectual resources and research infrastructure. The Research Park is now home to a range of companies employing many people in high technology careers.

EnterpriseWorks is a 43,000-square-foot startup business incubator in the Research Park for early-stage tech firms. It is owned and operated by the University of Illinois to help launch successful startup companies. Since the incubator opened in 2003, its incubator facilities have become the launching pad for hundreds of startup companies.



2011 Outstanding Research Park of the Year by the Association of University Research Parks

EnterpriseWorks provides an ideal environment for starting a high-growth technology venture with 24 full wetlabs, furnished office space, an extensive array of shared equipment, server co-location facilities, and conference rooms with complete presentation facilities and high-speed wireless Internet access. EnterpriseWorks offers many support services for its clients including:

- Entrepreneur-in-Residence Program: Local experienced technology entrepreneurs provide monthly consulting to new startup ventures and prospective technology entrepreneurs.
- I-Start Professional Service Assistance: A matching award program targeted to researchers who have a strong potential for technology commercialization through new company formation. I-Start offers a suite of first-year professional startup services for new University of Illinois entrepreneurs. This includes business development, legal setup, SBIR application, bookkeeping assistance, and marketing assistance.
- NSF I-Corps Site: A public-private partnership program launched in 2013 that teaches university entrepreneurs to identify valuable product opportunities that can emerge from academic research and offers entrepreneurship training to students.

Federal agencies participating in SBIR

Each year, 11 federal departments and agencies reserve a portion of their R&D funds for award to small business through the SBIR program. These agencies include:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation

Q: May a portion of an SBIR award be used to pay for outside services or assistance from a university or other nonprofit research institution?

Yes. In Phase I, up to one-third of the award can be used for outside assistance, and in Phase II, up to one-half of the award.

Federal Agencies participating in STTR

Each year, five federal departments and agencies reserve a portion of their R&D funds for award to small business or nonprofit research institution partnerships. These agencies include:

- Department of Defense
- Department of Energy
- Department of Health and Human Services
- National Aeronautics and Space Administration
- National Science Foundation

Q: What is the minimum percentage of research that can be conducted by the small firm and institution receiving an STTR award?

Small business must perform at least 40 percent of the work, and research institutions must perform at least 30 percent.

Q: When are the proposal deadlines?

Information on solicitations and proposal deadlines can be found at www.zyn.com/sbir/.

Contact Info

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