

THE JOHNS HOPKINS UNIVERSITY  
**INVENTOR'S GUIDE**

**A BRIEF ON TECHNOLOGY TRANSFER  
& COMMERCIALIZATION**



**JOHNS HOPKINS**  
TECHNOLOGY VENTURES

# HELLO!

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Our mission at Johns Hopkins Technology Ventures (JHTV) is to bring the benefits of academic discovery to the world, specifically where a business entity (usually a corporation or startup) is best poised to translate science to practice. That starts with you, our inventors, whose research is pushing the boundaries of innovation and creating hope for humanity.

Our commercialization efforts on your behalf can go in a variety of directions, and this Inventor's Guide attempts to succinctly introduce you to the common topics, paths, policies and processes you may encounter. The guide offers an interactive overview of the technology transfer process and the services offered at JHTV. We also hope to dispel some myths about tech transfer along the way.

More information on any topic can be found on our website, including a [separate, comprehensive Startup Guide](#) for those interested in founding a startup company. Look for the light bulb symbols throughout to access companion materials.

Thank you for your interest in this work — it is our privilege to be your partner.



**Christy Wyskiel**

Senior Advisor to the President of Johns Hopkins University  
for Innovation and Entrepreneurship  
Executive Director, Johns Hopkins Technology Ventures

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## What is technology transfer?

Technology transfer is the movement of knowledge and discoveries from the research setting to the public for the benefit of society. This occurs in many ways, but, for the purposes of this guide, **tech transfer** refers to the formal licensing of Johns Hopkins intellectual property to third parties, whether established industry players or new startup companies.

## What is intellectual property?

Intellectual property (IP) describes property that results from the human intellect. In the university context, as defined by the **JHU IP policy**, this includes *any new and useful process, machine, composition of matter, life form, article of manufacture, software, copyrighted work, or tangible property... It is created when something new and useful has been conceived or developed, or when unusual, unexpected, or non-obvious results, obtained with an existing Invention, can be practiced for some useful purpose.*

## How is intellectual property transferred out of Johns Hopkins?

To protect its intellectual property, the Technology Transfer team uses various tools such as patents, trademarks and copyrights. Technology is then transferred through a license agreement in which the university grants its IP rights in the defined technology to a third party for a period of years, sometimes for a particular field of use and sometimes limited to certain regions of the world.

## How can I publish the results of my research and still protect the commercial value of my intellectual property?

Once publicly disclosed (published or presented in some form), an invention may have restricted or minimal potential for patent protection. Therefore, we strongly encourage you to **report your invention** at least a month before any public communication or disclosure of the invention. You should also inform JHTV of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal submission, dissertation/master's thesis, publication or other public discussion of the invention.

**When in doubt, reach out to the Tech Transfer team!**

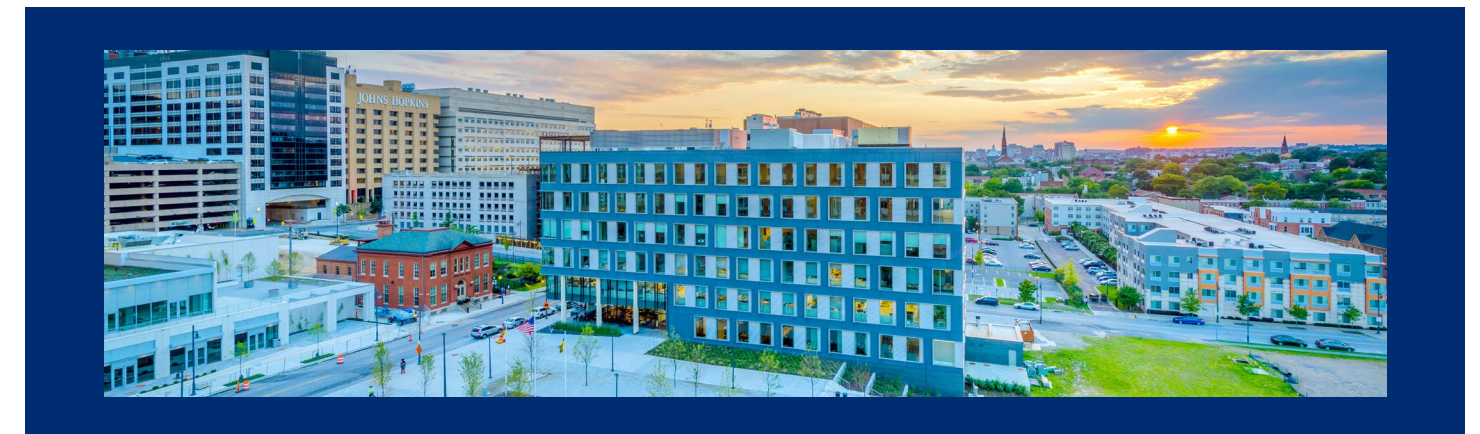
## What is JHTV's role in technology transfer?

JHTV is the university division responsible for overseeing technology transfer on behalf of all nine schools. We are here to:

- 1. EVALUATE** reported technologies
- 2. ADVISE AND SUPPORT** faculty in determining the optimal commercialization path
- 3. PROTECT** inventions with patent, trademark or copyright filings
- 4. MARKET** the inventions to identify a third-party licensee
- 5. NEGOTIATE** license agreements
- 6. SUPPORT** faculty startups so that research is brought to market
- 7. COLLECT AND DISTRIBUTE** revenues

## How long does the tech transfer process take?

The process may take months — or even years. Factors include the development stage of the technology, the market for the technology, the interest of potential licensing partners, competing technologies, the amount of work needed to bring a new concept to the marketplace and the resources of the licensee.



The 1812 Ashland Avenue building in East Baltimore, home of Johns Hopkins Technology Ventures.



# TECHNOLOGY TRANSFER

## What is my role?

### → **Submit a report of invention.**

Disclose your technology before publicly describing your invention.

### → **Help us prepare marketing materials, and identify and engage with potential licensees.**

We will seek your help identifying licensees, constructing non-confidential marketing materials, responding to technical questions from interested companies and participating in licensing discussions.

### → **Respond to requests from our Intellectual Property team.**

If we decide to pursue protection for your invention, most commonly via a patent filing, you will play a critical role in reviewing the patent application for completeness and accuracy prior to filing the application. The team will also need your input when responding to the United States Patent and Trademark Office as the prosecution progresses.

### → **Keep us informed.**

Share any significant technology developments, upcoming publications and interactions with companies related to your invention.

*Note:* Some technologies are licensed to a startup company, in which the inventor is a company founder. **Our Startup Guide** has more information for aspiring Johns Hopkins startup founders.

# INTELLECTUAL PROPERTY

## Who owns what I create?

All inventions conceived or first reduced to practice in whole or in part by Johns Hopkins faculty and staff members in the course of their university responsibilities or with more than incidental use of university resources are owned by the university (regardless of the source of funding).

## How does JHTV protect my invention?

JHTV protects your invention through various intellectual property strategies, which can include combinations of patents, copyrights and trademarks. Even if your invention concerns open-source software, JHTV can develop licensing strategies that meet your open-source commitments, while protecting commercialization options for your invention if desired.

IP  
EXAMPLES

## PATENTS

### 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 any patented invention. A patent, then, 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 it. Patent claims are the legal definition of an inventor's protectable invention.

### What can be patented?

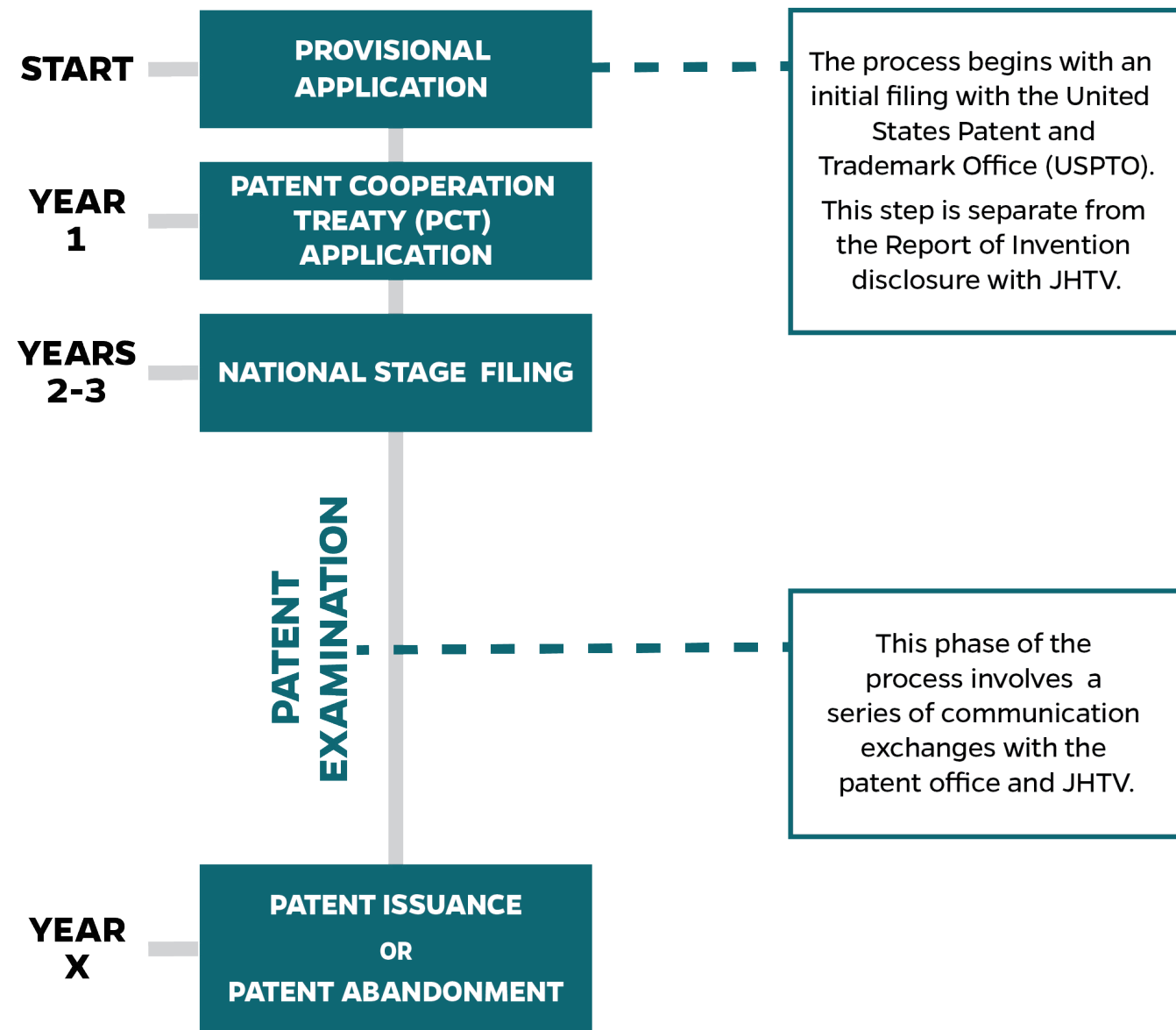
Patentable subject matter includes processes, machines, compositions of matter, articles, some computer programs and methods (including methods of making compositions, methods of making articles and even methods of performing business). Non-patentable subject matter includes theories, ideas, pure mathematics, laws of nature and scientific principles. Once a patent is issued, it is enforceable for 20 years from the initial filing date of the application that resulted in the patent, assuming that USPTO-mandated maintenance fees are paid.

# INTELLECTUAL PROPERTY

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

Filing a U.S. patent application typically costs \$10,000–\$15,000, and the cost of patent prosecution to secure an issued patent costs at least an additional \$10,000 or more. Obtaining issued patents in other countries may cost \$20,000 or more per country. Maintenance fees are also required to keep the patent “alive” in each relevant country. JHTV’s annual patent budget is used to support both new filing costs and maintenance fees on existing patents.

## PATENT PROCESS



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

Provisional patent applications are often used as a cost-effective way to begin the process of seeking patent rights while gathering additional data, assessing the market opportunity for the invention, and/or preparing a utility patent application.

A nonprovisional U.S. application or a Patent Cooperation Treaty (PCT) must be filed within one year of the provisional application to receive the benefit of the provisional filing date. Only the material described and enabled in the provisional application can receive this benefit, so getting the details right is important for a provisional application.

## Will Johns Hopkins initiate or continue patenting activity without an identified licensee?

We often file for protection before a licensee has been identified if we believe there is commercialization potential. At times, JHTV must decline further patent prosecution after a reasonable period (often a year or two) of attempting to identify a licensee. Once a license has been signed, the licensee generally assumes the patenting expenses, including reimbursement of past expenses.

## STUDENT INVENTORS

Undergraduate and graduate students are often inventors. The ownership of an invention solely developed by a student depends in part on in what capacity the student is operating. In general, students who created IP during a Johns Hopkins course own their contribution to any IP, whereas students who create IP while working in a faculty member’s lab (paid or unpaid) do not. [Click here for more information](#) about students and IP rights.

# REPORTS OF INVENTION

THE 7  
QUESTIONS

## What is a report of invention?

This is the first step in the commercialization process. It is a written description of your invention that includes all sources of support and information necessary to evaluate the protectability and commercial potential of your work. It is very important to report inventions prior to public discussion of your research. You can start the process of [reporting your invention here](#).

## Should I disclose research tools?

Yes. Sometimes referred to as Tangible Research Property (TRP), these are materials such as antibodies, vectors, plasmids, cell lines and mice that are used to conduct research. Research tools can be licensed to commercial third parties or research collaborators, and can generate royalties for the laboratory; patent protection is not necessarily needed to do this. We will work with you to develop the appropriate protection, licensing and distribution strategy. Research tools can also **include software**.

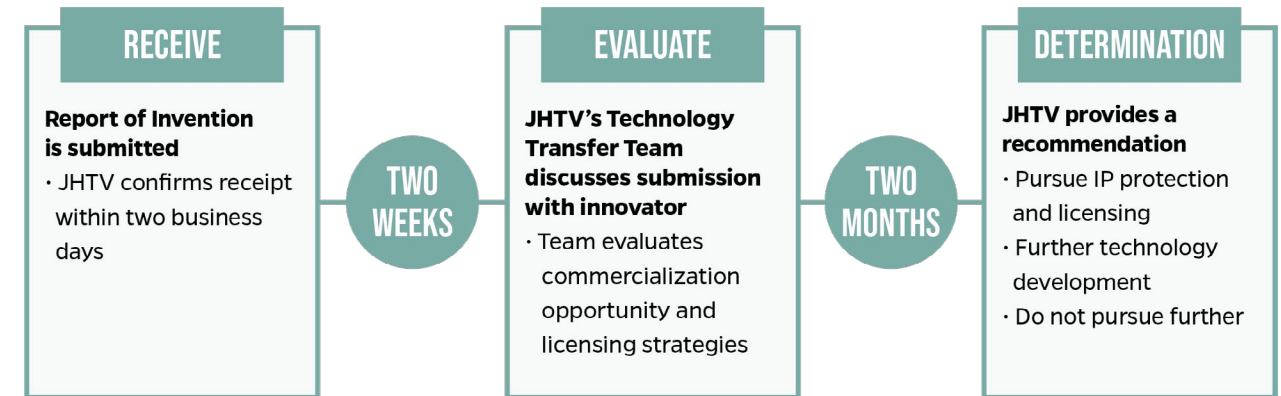
## Are the rights to an invention ever assigned to an inventor?

Johns Hopkins can transfer its rights of ownership to the inventor. Any continued work on the IP is subject to Johns Hopkins' policies, including its conflict of interest and conflict of commitment policies. Researchers who own certain IP rights still have an obligation to report any outside activities and interests related to their teaching, research or service to their department, and must obtain prior approval before beginning any activity.

## When should I report my invention?

Inventors should do so when they feel they have discovered something unique with possible commercial value or when the terms of your sponsored research require disclosure of inventions. Ideally, this should be done several weeks before public disclosure. It is critical to inform JHTV about any past or planned presentation, lecture, poster, abstract, website description, research proposal, dissertation/master's thesis, publication or other discussion of the invention. Embargoing a thesis does not protect the technology from public disclosure.

## TECHNOLOGY INTAKE PROCESS



## How does JHTV evaluate inventions?

The primary factors in the evaluation are: the patentability of the invention; 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; preexisting rights (also known as “background rights”) associated with the intellectual property; and potential competition from other products/technologies. We consult with the inventors, patent attorneys and industry contacts as part of this process.

## What strategies does JHTV use to commercialize software?

Software can be translated or commercialized through several mechanisms. Some inventors choose to distribute their software through the traditional licensing process, involving patent or copyright protection. Other researchers distribute code under an open-source license based on grant, publication or other requirements. JHTV can assist with all aspects of software licensing, including the choice of open-source license.

OPEN-SOURCE  
SOFTWARE



# MARKETING AN INVENTION & SELECTING A LICENSEE

## How does JHTV identify licensees and market my inventions?

Inventors' subject-matter expertise and research and consulting relationships can be instrumental in identifying both potential licensees and technology champions within those organizations. JHTV also leverages its existing licensee relationships, conducts market research and attends conferences and industry events to identify prospective licensees. Technologies available for license are summarized on our [TechPublisher website](#), a public inventory of Johns Hopkins inventions. Inventor publications and presentations are also excellent marketing tools.

Most often, the best choice for a licensee is an established business with experience in similar technologies and markets.

## How long does it take to find a potential licensee?

It can take months or even years to locate a potential licensee. Johns Hopkins inventions tend to be at an early stage of development, requiring a significant investment to commercialize. Therefore, even a groundbreaking invention may struggle to find a commercial home. The size, intensity and competition in the relevant market may also affect the attractiveness of the invention to prospective licensees.

## What happens once a potential licensee is identified?

Once interested companies are identified, we begin the licensing process:

1. A nondisclosure agreement is signed to protect all parties, as confidential information will be disclosed.
2. A kickoff meeting is held to discuss the potential licensee's business strategy and the JHTV licensing process.
3. The JHTV team works with the potential licensee to conduct a business assessment regarding the fit between the technology and the company business plan.
4. The third party performs technical due diligence. Inventors meet with company scientific staff to discuss the details of their technology.
5. JHTV presents a "term sheet," the business terms in summary format. Several rounds of negotiation are typically needed to reach agreement.
6. JHTV presents a draft of the full license, including the negotiated business terms and the legal terms. Several more rounds of negotiation are typically needed.
7. The final version of the license is circulated for signature, usually electronically.

## What if I want to start a company to commercialize the technology?

In this scenario, we will not actively market the technology. Given the inherent challenges in startup formation, however, faculty interested in forming companies to license technology are asked to provide a business plan (including a plan to raise capital to fund technology development) and appoint a business lead to conduct negotiations. *For more information, please review our **Startups** section.*



Daniel Lunz, left, CEO of Capsulomics, shakes hands with **Steve Kousouris**, JHTV's executive director of Technology Transfer, after signing the company's licensing agreement in December 2019 at JHTV's office in East Baltimore.

## DID YOU KNOW?

Studies have shown that over **70% of all licenses** are executed with commercial entities known by the inventor. Therefore, the contacts you provide in your Report of Invention and subsequent meetings with JHTV staff can be extremely useful!

# STARTUPS

## What is a university startup and how does it get formed?

A university startup is a new business entity formed to commercialize one or more related intellectual properties. Launching a successful startup company requires commitment, dedication, perseverance and an outside businessperson to take the lead. This is resource-intensive, and requires significant dedication. To help determine whether a startup is the right commercialization path for you, please review our **Key Startup Questions** and our **Startup Guide**. Interested faculty should also discuss their intent with their department head and seek approval from Johns Hopkins' **Conflict of Interest committee**.

If you decide to launch a startup, JHTV performs diligence to ensure that the startup has a viable business plan and negotiates a license to give the startup rights to develop the technology. The FastForward team at JHTV provides coaching, mentorship, fundraising support, and discounted office and lab space to university startups that license Johns Hopkins technologies.

## Does JHTV give any special consideration to startups when selecting a licensee?

JHTV must ensure that the licensee chosen is the one with the best chance to bring the technology forward. That said, faculty are often uniquely positioned to develop and champion a technology, so a startup company is often the best path for commercialization. License negotiations and agreements with startups must fall within the normal range of terms and conditions as similar licenses to non-inventor-associated companies. JHTV only negotiates with the outside business party, not the inventor.

## What role does an inventor usually play in a company?

Inventors can play various roles in a startup company, such as founder, operating officer (e.g., CEO), adviser or consultant. Because such participation raises potential conflicts of interest and conflicts of commitment, we encourage you to discuss your intentions with JHTV and to consult the appropriate policy office early in your planning. Keep in mind that, whatever role you play in such a startup, there must be at least one non-Johns Hopkins business lead involved in the licensing process.

## Does Johns Hopkins take equity in startups?

Johns Hopkins intellectual property licenses generally include an equity component. Additionally, all startups that license JHU intellectual property automatically receive FastForward membership including access to staff, services and resources. There is no additional equity or another requirement.

Access to our state-of-the-art offices, labs and co-working spaces at our two **FastForward** innovation hubs is through a separate application process. It is subject to availability, startup potential and funding, and involves monthly rental payments.

Read our **Startup Guide** to help determine whether a startup is the right commercialization path for you.

THE JOHNS HOPKINS UNIVERSITY  
**STARTUP GUIDE**  
A GUIDE TO TECHNOLOGY LICENSING  
& UNIVERSITY STARTUPS





# CONFLICTS OF INTEREST

## What types of conflict are created when faculty engage in commercialization?

Because of the financial interest created for Johns Hopkins inventors, commercialization may introduce the potential for conflicts of interest or conflicts of commitment. JHTV does not govern these policies, but can help determine when faculty should consult the appropriate offices. We will always advise disclosure, for example, when a faculty member is contemplating a startup or wants to be involved in human subjects research related to a licensed technology.

## How do I protect myself from conflict of interest?

Faculty should read **Johns Hopkins' Conflict of Interest and Conflict of Commitment Policy**, which includes, among other relevant information, the appropriate roles a faculty member can play in a startup and how faculty can engage in human subjects research. Notwithstanding the policy's stipulations, each proposed activity has its own nuances, so early disclosure of intended commercialization activities to the appropriate university office is critical. This can ensure that potential conflicts are appropriately managed from the start and do not interfere with the goal of bringing the innovation to market.

## Where can I find more information?

- A link to the conflict of interest policy and a detailed explanation of disclosure requirements can be found on the **university's conflict of interest website**.
- Disclosures are **made via eDisclose**, the Johns Hopkins website that supports the review of disclosures of outside activities and financial interests and the management of conflicts of interest.
- To initiate an early discussion or if you have general questions, please **consult the contact person** affiliated with your primary school.

# LICENSE AGREEMENTS

## What is a technology license/license agreement?

A license is a written contract by which an owner of IP permits another party to act under all or some of the owner's rights, in addition to laying out various rights and responsibilities related to the use and commercialization of the IP. Johns Hopkins license agreements usually stipulate that the licensee should act diligently to bring intellectual property into commercial use for the public good. They also outline business terms.

## What is an option agreement?

An option agreement permits a prospective licensee to evaluate a technology and its market potential and/or fundraise for a limited time before licensing, during which time the technology is on "hold" from others.

## If my invention is licensed, what can I expect to gain?

The licensing of an invention is an indication that a technology has market relevance and may, someday, reach the market. Inventors can also earn money, as a share of net income from a license accrues to the inventor(s) per the Johns Hopkins' IP policy. Finally, licensing and startup formation lead to knowledge and relationships that can augment a faculty member's teaching, research and consulting.

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

Many licensees will be more successful in their commercialization efforts if the inventor is actively involved. This can range from infrequent, informal contact to a more formal consulting or sponsored research arrangement. A startup founder can expect to be substantially more involved depending on their role with the company and at Johns Hopkins.

# OTHER AGREEMENT TYPES

# COMMERCIALIZATION

## What activities occur during commercialization?

The signing of a license agreement is usually the beginning of a long-term relationship between inventors/the university and the licensee. Most licensees invest in further refinement or development of a technology to improve functioning, reduce risk, prove reliability and satisfy the market requirements for adoption by customers. This can involve additional testing, clinical study and prototyping for manufacturability, durability and integrity, as well as further development to improve performance and other characteristics. In such cases, an inventor may remain significantly involved.

If you want to form a startup to commercialize your technology, please consult our **Startup Guide** for a detailed discussion on the activities involved in venture creation.

Along the way, JHTV collects periodic financial and development reports from the licensees to ensure that the technology's potential for impact is being fully pursued.

## What royalties are generated for the university if commercialization is successful or unsuccessful?

License agreements typically stipulate payments are due at various points in the commercialization process. These licensing fees (upfront, minimum annual royalties, milestones) range from very modest amounts to hundreds of thousands of dollars. If licensed products are eventually developed and sold, earned royalties can generate revenues. These payments are usually based on product sales, and can vary considerably. If equity is included in a license, it may yield a return for the inventors and Johns Hopkins, but only if the equity can be liquidated through a successful public offering or the sale of the company.

Most licenses do not yield substantial royalties. A study of licenses at U.S. universities demonstrated that less than 1% of all licenses yield more than \$1 million.

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

Licenses typically include performance milestones that, if unmet, can result in termination of the agreement. If circumstances allow, JHTV can pursue subsequent licensing to another business.

# REVENUE DISTRIBUTION

## How is licensing revenue – such as royalties – distributed?

All forms of licensing revenue — including proceeds from equity shares — are distributed according to the Johns Hopkins IP policy. After a JHTV administrative fee is collected, revenue is split according to the following schedule:

Annual Net Revenue	Inventor's Personal Share	Inventor's Research	Inventor's Dept(s)' Share	School Share	University Share
<b>FIRST \$300K</b>	35%	15%	15%	30%	5%
<b>OVER \$300K</b>	35%	15%	15%	25%	10%

## What is the JHTV administrative fee and how is it used?

A 15% administrative fee helps cover the cost of JHTV services related to technology licensing, which includes management of intellectual property (filing and communication with the United States Patent and Trademark Office), compliance with government reporting obligations associated with federally funded inventions, licensee diligence, and negotiations and agreement monitoring.

## Can I disclaim my share?

Yes, through a statement of intent sent to the executive director of technology transfer. This can be reversed, unless doing so will reinstate a financial conflict of interest.

## How is startup equity distributed?

The university typically receives equity in a startup company as part of a technology licensing agreement, and it holds this equity position until an exit event, such as acquisition or public offering, at which point the equity is sold. The proceeds are considered licensing revenue, subject to distribution according to the IP policy. Inventors may also receive equity directly for their personal involvement in the company.

## REVENUE DISTRIBUTION

### What are the tax implications of any licensing revenue I receive from the university?

Inventor shares are paid by check or wire transfer directly to the inventors, and are treated as personal income by the IRS. Recipients are responsible for taxes on this income. The university will send each recipient a Form 1099-MISC annually. Consult a tax adviser for specific advice.

### How are payments distributed if there are multiple inventors or multiple inventions in a license?

When reporting an invention to JHTV, inventors are asked to disclose the percentage contribution made by each inventor to the technology. This information is confirmed at the beginning of the licensing process, and the percentages are later applied to the distribution of revenues. If the license has multiple inventions, license revenue is allocated evenly among the inventions, unless the inventors agree to a weighted allocation.

### What are some examples of licensing revenue?

- Upfront fees (paid upon license signing)
- Milestone payments (such as upon product approval or first commercial sale)
- Minimum annual royalties (annual fees regardless of product sales)
- Sales royalties (a percentage of product sales)
- Equity (partial ownership of the company)

A license with potential future revenue creates a financial conflict of interest. Please read our section on **conflicts of interest** for more detail.

## CYCLE OF INNOVATION

### What does JHTV do to reinvest in the university research mission?

Johns Hopkins' IP policy stipulates that revenue from commercialization is distributed among university inventors, lab/discretionary accounts, schools, departments and university administration. With the exception of the inventor's personal share, the funding is used to reinvest in research and education efforts.

The administrative fee JHTV takes from gross revenues (before distributions are made) is used to fund the commercialization infrastructure that supports the translation of additional discovery. This includes efforts to raise translational funding via philanthropic grants, funding for faculty mentorship and education programs, and core services such as IP protection, licensing, agreement monitoring, and processing of various contracts.

The successful commercialization of Johns Hopkins inventions into products makes the world a better place, and the financial rewards of this work enable a virtuous cycle of additional research and translational infrastructure.





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