

McMaster University

Inventor's Guide

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For more information, [contact](#):

McMaster Industry Liaison Office
175 Longwood Road South, Suite 305
Hamilton, Ontario L8P 0A1

Certain sections contain information derived with permission from the *Inventor's Guide* at Stanford University. McMaster University is thankful for their support.

McMaster University Inventor's Guide

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McMaster University is known worldwide for innovation in **education** and **research**. It is a powerful research institution and has a culture that facilitates and encourages interdisciplinary teamwork and commercialization.

The *Inventor's Guide* outlines important steps and factors to consider in the path to commercialization at McMaster University. This guide is organized to provide information on the technology transfer process and services available for researchers.

McMaster Industry Liaison Office



McMaster Industry Liaison Office (MILO) is an important part of a dynamic innovation and entrepreneurial ecosystem in Hamilton.

MILO serves McMaster University, and its affiliated hospitals, Hamilton Health Sciences (HHS) and St. Joseph's Healthcare Hamilton (SJHH). MILO helps researchers ensure that their inventions and discoveries benefit humankind by facilitating collaborative research with industry partners and disseminating research results through commercialization.

OVERVIEW

What is technology transfer?

Technology transfer is the movement of knowledge and discoveries from the University and Hospitals to the general public. It can occur through research publications, exchanges at scientific conferences, graduates entering the workforce and relationships with industry, among others. In this guide, technology transfer refers to the licensing of inventions to a third party and describes some of the ways McMaster can support this process.

What is intellectual property?

Intellectual property (IP), simply defined, is any form of knowledge or expression created with one's intellect. It includes such things as inventions – patentable or not, computer software, trademarks, literary, artistic, musical or visual works, and even know-how.

How is IP transferred or “commercialized” from the Institutions?

IP is typically transferred or disseminated through a license agreement in which the University (Licensor) grants its rights in the technology to a third party (Licensee). The rights may be limited by time, exclusivity, a particular field of use, or region of the world.

What is patentable?

In order to be patentable, an invention must be novel, not obvious to a person skilled in the field of the invention, and it must have utility. More information can be found later in this guide and the *IP & Regulatory Considerations Handbook* developed by the Michael G. DeGroot Initiative for Innovation in collaboration with MILO.

Technology Transfer

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What is MILO's role in technology transfer?

In brief, MILO helps researchers move their research into society.

Specifically, MILO works with the McMaster research community to:

- Evaluate inventions and discoveries for patentability and market potential
- Protect and manage Intellectual Property (patents, copyright, know-how)
- Identify, market, and license inventions to companies
- Negotiate research agreements, licenses, non-disclosure agreements (NDAs) and material transfer agreements (MTAs)
- Advance collaborative research by facilitating partnerships with industry
- Connect with potential industry partners, management or investors to support start-up companies
- Coach, mentor, and provide training for entrepreneurs

What is the inventor's role in technology transfer?



Call MILO

Contact the MILO business development team when you believe you have discovered or created something unique with potential commercial or research value. IMPORTANT: Novelty is important for patent rights, so be sure to start this conversation early to help protect any intellectual property and fully leverage commercial potential.



Disclose Invention

Complete the Disclosure Form, outlining the details of your invention or discovery. IMPORTANT: Submit this form before publicly disclosing your invention in a presentation, lecture, poster, meeting, website, research proposal, dissertation, or publication. There is an obligation to disclose to MILO to ensure that the university is meeting all funding obligations by sponsors that supported the research.



Identify Partners

Work with MILO to identify companies and contacts you believe might be interested.



Be Responsive

Your expertise is critical in reviewing potential patent applications and responding to technical questions from companies.



Send updates

Please let MILO know about significant developments, upcoming publications or interactions with companies related to your IP. Remaining engaged will allow us to guide you to potential funding opportunities, partners, and other helpful resources.

Technology Transfer Process

The technology transfer process is a continuous cycle in which research drives innovation and the creation of licensed products and services in the marketplace, which in turn help fund future research and innovation.

- 1 Research
- 2 Invention Disclosure
- 3 Assessment
- 4 Intellectual Property Protection
- 5 Marketing
- 6 Licensing
- 7 Commercialization
- 8 Revenue

Technology Transfer Process

1

Research

Observations and experiments during research activities often lead to discoveries and inventions or the development of software and other copyrighted works. An invention is any useful process, machine, composition of matter, or any new or useful improvement of the same.

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Invention Disclosure

The written notice of invention to MILO begins the formal technology transfer process. An invention disclosure remains a confidential document and should fully describe your invention, including the critical solution it provides and advantages and benefits over existing technologies. It also includes information on co-inventors, sponsors of the work, and other important details. Disclosure forms are found on the [MILO website](#) and submitted to the [MILO business development team](#), who are available to answer any questions you have at any point during the process.

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Assessment

The period in which the invention is reviewed may include patentability, market, and commercialization assessments. This evaluation process will guide strategy on whether to focus on licensing to an existing company or create a new business start-up.

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IP Protection

Patent protection begins with the filing of a patent application. Once filed, it requires several years and tens of thousands of dollars to obtain an issued patent. Other common forms of IP protection include copyright, trademarks and official marks. Other types of intellectual property can be protected through contracts and material transfer agreements.

Technology Transfer Process

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Marketing

With your input and support, MILO will work to identify potential companies and collaborators that have the expertise, resources, and business networks to bring the technology to market. If this leads to the creation of a new business start-up as the optimal commercialization path, McMaster will license IP rights to the company. For more information, see McMaster's *Start-Up Guide*.

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Licensing

Once an appropriate and interested company is identified, MILO negotiates the financial and diligence terms to commercialize the technology, usually in the form of a license agreement.

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Commercialization

The licensee continues the advancement of the technology and makes significant investment to develop the product or service to bring to market. This may include further research, product development, scale up, additional IP, regulatory approvals, manufacturing, sales and marketing, distribution, and customer support.

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Revenue

Any revenues received by McMaster are distributed annually to inventors and the Institutions, as per the *Joint Intellectual Property Policy*. McMaster uses the institutional funds to support additional research and to encourage further participation in the technology transfer process.

Intellectual Property

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What is an invention disclosure?

An invention disclosure is a confidential document that includes a detailed description of your invention, advantages, potential applications, ongoing work and plans of any future publications. The disclosure should list all sources of support, including funding agencies, creators and participants. It is very important to disclose inventions to MILO before publication in case you wish to pursue patent rights. Disclosures should be filed as soon as the invention or work is clearly conceptualized. A disclosure form itself does not provide any intellectual property protection.

You can find copyright and invention disclosures on the [MILO website](#), or [contact](#) the business development team if you need assistance.

How does McMaster assess invention disclosures?

Business Development experts at MILO examine each invention disclosure to review novelty and commercial potential of the invention.

Factors considered in the evaluation process:

- Ability to protect the invention (patent, copyright, etc.)
- Ability to use the invention (freedom to operate)
- Market for the invention (size of market, competing technologies)
- Development risk (the amount of time, money and expertise for further development)

This assessment may consider whether the intellectual property is better suited for a new start-up, or a license to an established company.

OWNERSHIP OF INTELLECTUAL PROPERTY

If employees or significant resources of McMaster or the affiliated hospitals - St. Joseph's Healthcare Hamilton (SJHH) and Hamilton Health Sciences (HHS) are used in the creation or development of an invention, McMaster's Joint Intellectual Property Policy applies. Use of McMaster and affiliated hospitals resources means:

- use of facilities owned, operated or administered by McMaster, HHS, SJHH
- use of funds from, or administered by McMaster, HHS, SJHH

The University is the first owner of all newly created or discovered IP at any of the institutions - McMaster, SJHH, and HHS. However, the Joint Intellectual Property Policy is flexible and allows the inventors to decide whether they wish to pursue commercialization on their own or with the assistance of MILO. Revenues generated through commercialization managed by MILO is shared between the inventors (50%) and the institutions (50%), or reinvested into research.

What is the difference between an inventor and a participant?

Creator: person who had an original idea or contributed intellectual input to the invention

Participant: a person who works under the direction of another AND does not contribute any original thought to the invention

Ensure this is done correctly, as disputes in inventorship can cause result in invalid patents down the line. If there is doubt in inventorship, MILO can help distinguish creator from participant.

OWNERSHIP OF INTELLECTUAL PROPERTY

What if I invented something that didn't use McMaster resources?

If McMaster resources are not used in the creation or development of the invention, the *Joint Intellectual Property Policy* does not apply. If you are unsure, contact MILO to advise on the situation.

Should I list visiting scientists or scientists at other institutions?

Yes, everyone involved should be mentioned in your disclosure, even if they are not McMaster employees. It is important to discuss all working relationships with MILO to understand the implications for any subsequent inventions.

Can a student be an inventor under the *Joint Intellectual Property Policy*?

Yes, students may be inventors and may file invention disclosure forms if they used McMaster resources in the creation of their invention.

What should I consider before entering into a consulting contract?

To avoid potential conflict of interest when consulting, faculty members should not undertake consulting activities which prevent completion of University responsibilities. Negotiating consulting agreements and conforming with ethical standards are the primary responsibility of the faculty member. Faculty members shall annually submit a report of all consulting activities according to the *Conflict of Interest Policy for Employees*.



RESEARCH CONSIDERATIONS

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

Yes, but the patent rights may be compromised if you wait too long. It is best to submit an Invention Disclosure well before communicating or disclosing your invention publicly. Be sure to inform MILO of any imminent or prior public disclosure if you are considering a patent application.

Can I use material or IP from others in my research?

Yes, however it is important to understand if there are any use restrictions around the materials. MILO can help determine if this use may influence the ownership and license rights of your subsequent research results. If you obtain materials from outside collaborators, an incoming Material Transfer Agreement (MTA) will outline the restrictions. [Contact MILO](#) for more information on MTAs.

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

Yes. However, it is important to document items that are to be shared with others and the conditions of use, which is often done using a collaboration agreement or a Material Transfer Agreement (MTA).

What rights does a company or sponsor funding my lab have to any discoveries associated with my research?

A sponsored research agreement will usually contain provisions pertaining to IP. The sponsor may have rights to obtain a license to the defined and expected outcomes of the research. Often, corporate-sponsored research contracts allow the company a limited time to negotiate a license for any patent or intellectual property rights developed under the scope of work that the sponsor funded. 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 agreements, collaboration agreements, MTAs, and other contracts related to sponsored research are handled by MILO's research contracts team who work closely with the licensing and business development team on IP issues.

PATENTS



What is a patent?

A patent gives an exclusive right to prevent others from making, using or selling the holder's invention from the day the patent is granted to a maximum of 20 years after the patent was filed in a particular jurisdiction. Patents protect new inventions (process, machine, manufacture, composition of matter), or any new and useful improvement of an existing invention.

Different countries have different rules about what is patentable subject matter.

There are three basic criteria for patentability:

- Novelty: to be granted a patent, the invention must be the first of its kind in the world;
- Utility: a valid patent cannot be obtained for something that does not work or that has no useful function;
- Non-obvious: to be patentable, your invention must be a new development or an improvement of an existing technology that would not have been obvious to someone working in your area of specialty.

Although you may obtain a patent for an improvement to an existing invention, keep in mind that the original patent may still be in force. If this is the case, manufacturing or selling the product with your improvement may be an infringement of the original patent. This situation is often resolved by agreement between the patent owners to grant licenses to each other.

Who is responsible for patenting?

MILO will work with inventors and outside patent counsel to draft patent applications and responses to worldwide patent offices. MILO will select the patent agent, oversee patent prosecution, and pay patent-related expenses, so long as the IP ownership or rights remain with the university.

PATENTS

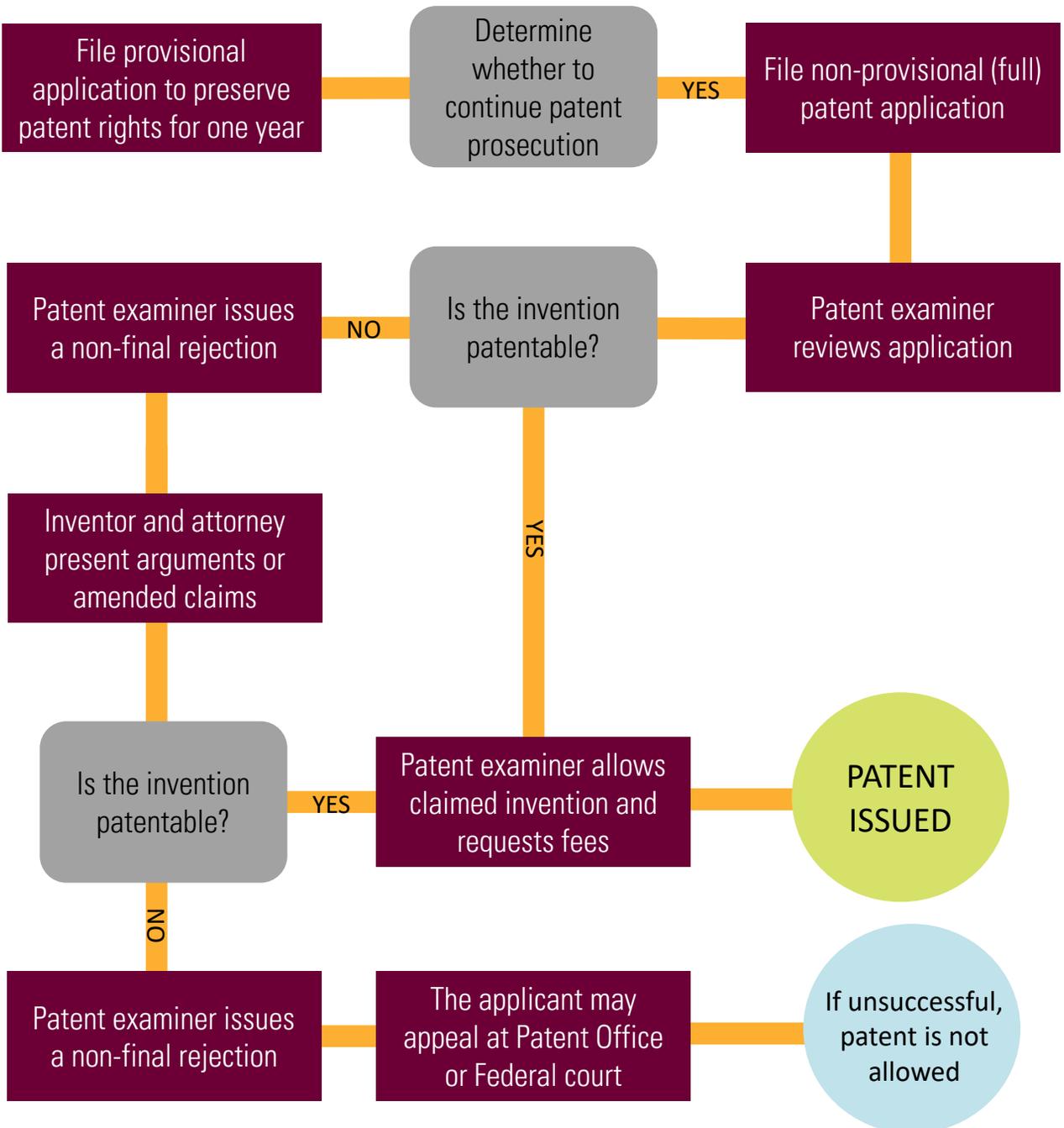
What is the patenting process?

There are two types of patent applications: provisional (less formal) and non-provisional (formal) patent applications. Both are described below. Filing a full patent application means preparing a formal application and asking the Commissioner of Patents to grant you a patent. When an application is filed, the patent agent will ask the inventor(s) to sign a declaration (an oath stating that you are an inventor) and an Assignment, which confirms the inventor's transfer of ownership of the patent to McMaster.

After filing of a full patent application, the patent agent will receive written notice from the patent office as to whether the patent application and its claims have been accepted by the patent office. It is not unusual for the patent office to reject an application because wording need to be clarified or the claims are not patentable for a variety of reasons. For example, the examiner may find previous patents or publications that show features of one or more claims in your application. Or, the examiner may feel some claims would be obvious to a person with ordinary skills in the field. The examiner's objections will be outlined in a report or letter called a "Patent Office Action," which will list the objections and set a date for you to reply. The action may object to your whole application, or it may ask for changes to the claims. If the application is rejected, a written response must be filed within the period that the examiner specifies, usually within three to six months. The claims can be amended or a defence of the claims provided.

During this process, referred to as "patent prosecution," input from the inventor(s) is essential. Inventors are in the best position to provide an understanding of the technical aspects of the invention or the prior art cited against the application. A successful end to prosecution is a "notice of allowance" informing you that your application is allowable. This process may take several years from initial application to issued patent.

PATENTS



PATENTS

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

A provisional patent application provides the US patent office evidence of an invention and a priority date at a reduced cost. The application is not examined and claims are not required. A regular patent application and related foreign applications must be filed within one year of the provisional application and must include claims. An applicant only receives the benefit of the provisional application filing date if the material is adequately described and enabled in the provisional application.

What is different about foreign patent protection?

Foreign patent protection is subject to the laws of each individual country, but, in general, the process works much the same as it does in Canada or the U.S. However, one important distinction is that both Canada and the U.S. provide a one-year grace period that protects an applicant if public disclosure is made before a patent can be filed. For almost all other countries., an inventor will immediately lose the ability to file for a patent if they publicly disclose the invention.

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. A PCT is generally filed one year after the original filing (either provisional or regular). The PCT application must later be filed in the national patent office of each country in which the applicant wishes to seek patent protection and must happen within 30 months of the original filing, a part of the process called the “national phase.”

What is gained by filing a patent application under the PCT?

The PCT provides two advantages for an additional fee. First, it delays the need to file costly foreign applications. This gives the applicant the opportunity to further develop, evaluate or market the invention. Second, the international preliminary examination often allows an applicant to simplify the patent prosecution process by having a single examiner review the patentability of the claims, which can save significant costs in prosecuting foreign patent applications.

COPYRIGHT

What is copyright?

Copyright is the exclusive legal right to produce, reproduce, publish or perform original literary (including computer programs), artistic, dramatic or musical works, as well as performances, sound recordings and communication signals.

The Canadian Copyright Act automatically secures protection when a work is fixed into a tangible medium such as a book, software code, video, etc. In some instances, McMaster registers copyright, but generally not until a commercial product is ready. By registering copyright with the Canadian Intellectual Property Office, a certificate is received that can be used in court as evidence of ownership. In Canada, copyright protection starts upon creation in a fixed form and ends 50 years following death of the creator. After that, the work is in the public domain, and anyone can use it.

What should I do if I'm interested in commercializing my copyright?

Copyright can be a very valuable asset and universities have often been successful in commercializing copyright. In most cases, copyright is commercialized by licensing the work to third parties, either to a distributor or direct to an end user, usually for a fee. In some cases, it may become part of a joint venture or spin-off company.

If you have created something which you think has broader potential for use by others, the first step is to contact MILO. MILO can help identify any copyright issues and determine the most appropriate way to protect and commercialize your work. You should make sure that you have information and documentation about who was involved in creating the work, how it was funded, and any relevant agreements. MILO can then advise you as to what options you have if you wish to pursue commercialization.

TRADEMARKS

What is a trademark and how is it useful?

A trademark includes any word, name, symbol, device, or combination, that is used in commerce to identify and distinguish the goods or services of one seller from those sold by others. They are valuable intellectual property rights which assist organizations in making their brand known and can be licensed to others. Examples of valuable and famous trademarks include Google, Microsoft, IBM, Apple logo, and Nike's Just Do It slogan.

What is trademark registration?

When you register your trademark, you get the sole right to use the mark in that country for a term, which is renewable for as long as you are using it and pay renewal fees. For Canada, the initial and renewal terms are 15 years, which may be renewed indefinitely.

What is the process for registering a trade-mark at McMaster?

Step 1 - Trademark search

MILO will undertake a brief search to determine if the proposed trademark is currently being used by another organization. This search is important to determine if the proposed trademark is likely to infringe any other organization's intellectual property rights.

Step 2 - Prepare and file application forms

MILO's IP Administrator will prepare all documents needed to apply for trademark protection in Canada. You will be required to provide the following information:

- Date of the first use of the trademark (e.g. the day you made a brochure available or sold your first product)
- A copy of any design, drawing or logo in black and white

Step 3 - Review and publication by the Registrar of Trademarks

Once the application is filed, the Canadian Trademarks Office will review and publish the application in approximately six to eight months. The publication and registration certificate will then be provided to the University as proof of the protection of the trademark.

Commercialization

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MARKETING AN INVENTION

MILO is committed to finding the best licensee for your invention - a company that will dedicate resources to developing the technology and bringing it to market.

How does MILO market my inventions?

MILO uses many sources and strategies to identify potential licensees and market inventions. Existing relationships of the inventors or MILO staff are often the most useful in helping to validate the commercial potential of the invention and connect with licensees. Market research or complementary patent analysis can assist in identifying prospective licensees. Academic publications and presentations are often excellent marketing tools, as well as websites that host and promote specific technologies.

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. Patience, perseverance, and a broad network are essential.

Can there be more than one licensee?

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

LICENSES



What is a license?

A license is a permission granted by the owner of intellectual property that allows another party to act under all or some of the owner's rights.

License agreements describe the rights and responsibilities related to the use and exploitation of intellectual property developed at McMaster. University license agreements usually stipulate that the licensee should diligently seek to bring the intellectual property into commercial use for the public good and provide a reasonable return to McMaster and the inventors. MILO negotiates and manages the license agreements on behalf of the inventor(s),

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

In accordance with the Joint IP Policy, any financial return from a license is shared with the inventor(s). Most inventors also benefit from knowing their inventions are being made into a product or service that have a social and economic impact on society. Additionally, new and enhanced relationships with businesses can be another outcome that can augment one's teaching, research and consulting activities. 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 to transfer the technology to the company. This can range from infrequent, informal contact 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 McMaster.

TYPES OF AGREEMENTS

MILO negotiates, manages, and signs off on all industry-related research agreements on behalf of the university and inventor(s) or researcher(s). All terms are discussed with, and have the input from, faculty members to ensure that your rights are protected, and you are informed and agree with the terms and obligations.

Non-Disclosure Agreements

Non-Disclosure Agreements (NDAs) protect the confidentiality of an invention during evaluation by potential licensees. Patent rights can be jeopardized if confidential information is shared before filing a patent application without an NDA.

Material Transfer Agreements

Material Transfer Agreements (MTAs) enable incoming and outgoing materials to be shared between McMaster researchers and those at other institutions or companies for research or evaluation purposes. Intellectual property rights can be endangered if materials are shared without a proper MTA.

Sponsored Research Agreements

Sponsored Research Agreements (SRAs) describe the terms under which sponsors (companies, non-profits) provide research funding and in-kind support to McMaster.

Inter-Institutional Agreements

Inter-Institutional Agreements (IIAs) describe the terms under which two or more institutions (generally universities or hospitals) will collaborate to assess, protect, market, license, and share in the revenues received from licensing jointly owned intellectual property.

Option Agreements and License Agreements

Option Agreements allow third parties a limited time to evaluate a technology before entering into a license agreement, and may include a fee to 'hold' the technology. License Agreements grant a third party the right to use and commercialize McMaster technology for royalty, milestones, equity, or other fees and consideration.

COMMERCIALIZATION

The signing of a License Agreement is usually the beginning of a long-term relationship. 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 and further development to improve performance and other characteristics. The licensee's performance is monitored by MILO for the duration of the license. Most License Agreements require periodic financial or development reports from the licensees.

What license fees are generated for McMaster if commercialization is successful?

License agreements often include requirements for payments in the form of upfront fees, minimum annual royalties, milestone payments, earned royalties and sometimes equity. Licensing fees (upfront, annual minimum, milestones) range from very modest amounts to hundreds of thousands of dollars. If licensed products are eventually developed and sold (which can take years), earned royalties can generate revenues. Royalties are based on product sales and can vary considerably. If equity is included in a license, it may yield a return for the investors and McMaster, but only if the equity can be liquidated through a successful public offering or the sale of the company.

What will happen to my invention if the start-up company or licensee is unsuccessful in commercializing the technology?

License Agreements typically include performance milestones that, if unmet, can result in termination of the license. Termination allows MILO to pursue subsequent licensing to another licensee.

How are license fees distributed ?

MILO is responsible for managing the patent expenses and license revenues associated with technology assigned to McMaster. Revenues from license fees, royalties, and equity are shared with inventors according to McMaster's the *Joint Intellectual Property Policy*.

Contact

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McMaster Industry Liaison Office (MILO)

175 Longwood Road South, Suite 305
McMaster Innovation Park
Hamilton, Ontario L8P 0A1
Web: <https://research.mcmaster.ca/mcmaster-industry-liaison-office-milo/>

Gay Yuyitung
Executive Director
Phone: (905) 525-9140 x 23164
Email: yuyitun@mcmaster.ca

Glen Crossley
Associate Director, Business Development & IP
Phone: 905-525-9140 x 20372
Email: crosslg@mcmaster.ca