

McMaster University

Start-Up Guide

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McMaster University Start-Up Guide

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The Start-Up Guide is intended for McMaster faculty, staff, and students interested in launching a start-up company based on intellectual property developed at McMaster University. It also provides relevant resources available throughout the process of starting a company.

This guide focuses on starting a company to commercialize the technology stemming from McMaster's research programs, but it is full of useful information for every entrepreneur.

McMaster Industry Liaison Office



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

MILO assists the McMaster community by supporting invention disclosures and the commercialization processes for intellectual property developed (IP) at McMaster and the affiliated hospitals, Hamilton Health Sciences (HHS) and St. Joseph's Healthcare Hamilton (SJHH). MILO manages the institutions' IP portfolio and has an expanding number of innovations and technologies available for licensing. Whether MILO is licensing to a start-up company or an existing company, McMaster's goal is to maximize the chances of successfully transferring the technology to benefit society, while prioritizing the University's missions of research and education.

Technology Transfer for Start-Ups

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 Create the Company
- 6 Rights to the Technology
- 7 Commercialization
- 8 Revenue

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. Often, multiple researchers - including faculty, students, post-docs and research staff - contribute to an invention and may be inventors.

2 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 the invention, including the critical solution it provides and advantages and benefits over certain technologies. It should also include information on co-inventors, sponsors of the work and other important details. Invention disclosures can be submitted to the [business development team](#) at MILO. Forms are found on the [website](#).

3 Assessment

The period in which the invention is reviewed and evaluated for patentability, market applications, and commercialization potential. This evaluation process will guide strategy on whether to focus on licensing to an existing company or create a new business start-up. If the inventors are contemplating starting a company around the technology, it is helpful to inform MILO about their plans during this stage.

4 Intellectual Property Protection

If appropriate, as based on the Assessment, patent protection begins with the filing of a patent application. Once filed, it typically takes several years and tens of thousands of dollars to obtain an issued patent. Other common forms of IP protection include copyright and trademark. Please see the *Inventor's Guide* for more information on types of intellectual property.

5 Create the Company

Once the decision has been made that the best vehicle for commercialization is a start-up, the company should be formally incorporated. Typically, companies choose to incorporate federally in Canada for wider rights. It is required that the company have at least one director and established company bylaws. Contact MILO for support during the company creation process.

The company founders will create a capitalization table to understand the equity distribution amongst the founders. Next, a shareholder's agreement is executed to determine the rights and protocols to follow in the event of changes, such as when founders leave or new shareholders join the company.

Ideally, a Board of Directors should be established as soon as possible; these Directors are experienced senior level executives who can bring expertise to provide strategic direction and advice and hold management accountable to creating shareholder value. At company creation, a Board can have as little as three Directors, some of whom are ideally external to the company's management team. It may also be a good idea to have a Board of Advisors, who can play a similar role in providing expertise and access to their network, but typically would have less of a fiduciary duty to the company.

6 Rights to the Technology

For inventions that are managed by McMaster, MILO will negotiate and execute an option, license or assignment agreement. This agreement is a contract between the University and the company in which commercial rights are granted to the company, in exchange for some consideration back to the University, which may be in the form of equity, royalties, and/or milestone or other fees.

When McMaster inventors are involved as founders in a start-up company, offering rights to that company can raise concerns about conflicts of interest. The final agreement must fall within the normal range of terms and conditions of similar licenses to non-inventor-associated companies.

7 Commercialization

Most university inventions are early-stage and require further research and development. The company continues the advancement of the technology and makes other business investments to develop the product or service. This may entail further development, regulatory approvals, patent expenses, sales and marketing support, training, and other activities. The company will be expected to meet commercialization milestones described in the agreement of rights.

8 Revenue

Any revenues received by McMaster are distributed annually to inventors and the University or hospitals, as per the *Joint Intellectual Property Policy*.

Starting a Business

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Launching a start-up company requires commitment, dedication, and perseverance. Even if the core technology is innovative and promising, the business also requires a strong market opportunity, competitive advantage, financial investment and planning, and an experienced management team.

Entrepreneurs spearheading the new company will be the key champions for the technology and start-up. Beyond securing the rights to the technology, they are responsible for a variety of tasks such as optimizing and scaling up of the product or service; identifying and acquiring suppliers, partners, and customers; and securing financing. An important immediate question for inventors is the level of involvement in any or all of these tasks directly as part of the company team, and how to balance this with their role as faculty, research staff or student.

Things to Consider

Intellectual Property

What is the current patent landscape surrounding the technology?
Will the company have freedom to operate to develop the product?

Development Risk

What stage is the technology at?
How much time and money is required to bring a product to market?

Investment Return

Can investors obtain their required rates of return?

Market Dynamics

Is the market big enough?
Is it controlled by a few players?
Is there a healthy growth trend?

Product Strategy

Does the technology lend itself to opportunities for multiple products or platforms?

Financial Potential

What market share can be obtained?
How much will it cost to reach the potential market?

Develop a Business Case

Entrepreneurs should develop a thoughtful business plan to understand all of the above considerations. This should include a plan for developing the technology and attaining sufficient revenue to sustain and grow the company which can be useful when meeting with investors and pursuing funding. It is important to note that this document is not fixed - it should be revisited frequently to reassess the state of the business. The business plan is generally a confidential document and should be carefully distributed.

A business plan should be clear and concise, including:

Company name

Mission Statement:

A guiding vision for the company

Market Landscape:

How big is the market?

What are its critical problems?

How is the landscape changing?

Who is the competition?

Is it a consolidated or fragmented industry?

Company's solutions:

Which products or methods will be developed?

How long will it take?

What are the unique advantages?

Are they sustainable?

How will they change the current market?

Intellectual Property Landscape

Marketing and Sales Strategy:

Pricing, Product, Placement, Promotion

5-10 year Strategic/Financial Plan:

Financial projections

Key milestones to meet projections

Key metrics

Key assumptions

Funding requirements

Management Team:

Members with CV and roles

Timeline and Key Milestones

Risk Factors and Mitigation Measures

The [Resource Guide](#) at the end of this document contains a list of references that provide additional information and resources to help write business plans.

Pursue Investors & Funding

In order to further the development of a technology into a viable product, this process typically requires significant investment from **venture capitalists (VCs)** or **angel investors**. Technology commercialization often requires multiple rounds of funding from a variety of sources. Angels and VCs are private investors who take on high risk ventures with goals of high returns. Return requirements vary based on industry and stage of funding, but many investors seek 10X their initial investment over 5 years.

Angel investors are typically high net worth individuals who have a personal interest in funding new companies. They are often willing to invest in earlier stages and with smaller amounts of money than VCs in exchange for equity. They can take passive or active roles in the start-up.

Compared to angels, venture capitalists can invest larger amounts of money in a company, in turn receiving more equity. VCs also exercise control and bring experienced management talent to help guide and grow the company. Sometimes they invest in several rounds of funding and are part of a larger consortium of investors in the company.

Start-ups may also investigate and pursue funding from non-traditional sources such as government grants, bank loans, and crowdfunding (GoFundMe, Kickstarter, Indiegogo, etc).

Pitfalls

New company formation is a high-risk proposition. Some common problems that can cause academic start-ups to fail are:



Inexperienced Management:

A strong, experienced, cohesive team is required for a successful start-up company. Problems can arise if founders or other members of the team do not have enough start-up and business experience or differences in strategic vision



Lack of Funding:

A start-up needs sufficient capital to overcome technical challenges, reach milestones and progress to the next phase of development



Technology Does not Meet Commercial Need:

Sometimes the research is innovative and exciting but does not correlate to a critical commercial need or current solutions are still better than the new technology



Timing:

Even when a commercial need exists, the company may miss the market. Sometimes this is because the market is not ready for a product or the product is too late to the market



Marginal Niche:

If the target market is smaller than expected, the company may not meet its financial targets

McMaster Policies

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Intellectual Property Policy

Intellectual property (IP) created by McMaster, St. Joseph's Healthcare Hamilton (SJHH) and Hamilton Health Sciences (HHS) faculty, staff or students using institution resources is governed by McMaster's *Joint Intellectual Property Policy*.

In short, if University funds or facilities are used:

- Inventions must be disclosed to MILO to ensure obligations to industry partners or funding agencies are met
- University is owner of IP arising from any of the institutions - inventors will be asked to assign their rights to the institution for commercialization
- Inventors have the option to take personal ownership and commercialize their invention on their own
- Revenues generated from IP commercialization are shared with the institution and inventors

One exception to joint ownership is if the rights to an invention were granted to a third party under a separate prior agreement, such as a sponsored research agreement or material transfer agreement.

Conflict of Interest

McMaster and inventors must be sensitive to conflict of interest (COI). A start-up or faculty-associated company should not utilize university resources to support company activity. If university resources are required, like space or equipment, MILO can advise. Conflicts of interest can involve issues of time allocation. Faculty should discuss the situation with their division head or department chair regarding time spent on projects outside their University obligations. Please review *Statement on Conflict of Interest in Research*.

Consulting

To avoid potential COI 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 member shall annually submit a report of all consulting activities according to the *Conflict of Interest Policy for Employees*.

Obligation to Sponsors

Inventors should take particular care in disclosing all sponsors, including companies whose funding or materials led to the invention. Sponsored research agreements specify what rights a sponsor has in any IP developed as a result of the sponsored research. Under most circumstances, federal funding of research leading to an invention will not impose significant impediments on commercializing the invention via start-up. Funding or materials provided by other entities may result in license rights to those entities, limiting the license rights available for a start-up. Corporate sponsors are typically granted rights to negotiate a license for any IP arising from sponsored research, but sponsorship agreements vary widely. MILO reviews the research agreements listed on the invention disclosure to identify any licensing restrictions on the invention.

Frequently Asked Questions

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How are inventors involved in the licensing process?

MILO encourages inventors to recommend potential licensees, provide input for assessing technical and market feasibility, and offer suggestions on licensing strategies to commercialize the technology. MILO will always consider inventors' feedback and strive to keep inventors informed. When an inventor is also a founder, the best practice is for MILO to negotiate agreements with a founder who is *not* also a McMaster inventor.

When can the start-up management negotiate a license?

MILO can begin negotiations with any representative of the company. It is best if the company has a business and financing plan. If possible, McMaster faculty members should not represent the company in negotiations.

What is an option agreement and how is it different from full license?

An option agreement is often used to reserve rights in an invention while a company evaluates the technology, explored funding opportunities and raises the capital needed to fully license the rights in question. Option agreements may include financial considerations to McMaster to reserve those rights.

FAQs

How long does it take to license a technology from McMaster?

This time it takes to license a technology varies. After the technology is disclosed to MILO, it could take several weeks to a few months to review the invention and then apply for a patent application (if appropriate). During this time, the entrepreneur(s) could begin to develop the new venture (develop business plan, seeking investors, etc.). Negotiations with MILO for a license could days, weeks, or months depending on the terms agreed upon.

What are the typical licensing terms for McMaster's agreements with start-up companies?

License agreements have both financial and non-financial terms. These vary based on the technology, the stage of development, the field of use, and the commercialization risk.

Typical terms consist of:

- Financial terms for patented intellectual property may include annual fees, milestone payments and royalties on product sales
- Financial terms may also include a small, minority share of equity in the company
- Exclusive licensees are generally expected to pay patent expenses
- Diligence terms to ensure reasonable progress in growing the company and commercializing the invention

Does the university take equity in start-ups?

McMaster often accepts equity as part of the financial terms of the license. Since most start-up companies have limited cash, equity is often substituted for some of the cash consideration. Equity is a way for the university to share some of the risks and rewards associated with start-ups.

FAQs

What happens if there are follow-on patents to the original patent?

It depends on who owns the follow-on patents. Follow-on inventions conceived by the licensee without McMaster involvement usually belong to the licensee. Follow-on inventions based on work at McMaster will be owned under McMaster policies. The existing licensee will not be automatically granted a license to the follow-on invention. Further discussion and terms need to be put in place for those rights.

If the start-up is based on an invention jointly owned by McMaster and another institution, what happens to the invention?

Typically, McMaster enters into an Inter-Institutional Agreement (IIA) where one of the institutions will take the lead in negotiating. This way a company can negotiate a single agreement with an exclusive license to both parties' IP rights.

Can I continue to do research at McMaster on the technology that is the basis of a start-up?

McMaster reserves the right to protect its own inventions for research purposes. However, to develop technology at McMaster for the benefit of the start-up, the researchers must follow McMaster's conflict of interest policy.

Resources

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McMaster and
Hamilton Region
Start-up Incubator



Hamilton's Regional
Innovation Centre



McMaster's
Technology
Transfer Office

The Forge



theforge.mcmaster.ca

The Forge is the start-up incubator for McMaster University and Hamilton region. Their goal is to work hand-on with early-stage entrepreneurs to help them build successful start-up companies. So far, 105 companies have been through The Forge; together they have raised over \$20 million and are selling products in 30+ countries. Their programs listed below are open to anyone pursuing scalable, technology-based companies.

The Forge Student Start-Up Competition:

Join the Student Start-Up Competition to compete for up to \$100,000 in cash prizes and guaranteed access to the Forge Summer Start-Up Academy. The Student Start-Up Academy is a summer program from May to August that provides resources, training and mentorship to McMaster students developing their business ideas. The program includes one-on-one mentorships, founder socials, entrepreneurship workshops, milestone meetings and conference networking opportunities. Participants in the Forge Summer Student Academy are expected to attend workshops and other requirements, under the guidance of the Forge staff and mentors. The competition is open to current students as well as alumni who graduated in the past school year. Applications open each year in January.

The Forge Start-Up School:

Spend 14 weeks working intensively with entrepreneurs-in-residence and mentors at McMaster Innovation Park to gain the tools you need to run an efficient start-up. The Forge co-working space and makerspace will be open to you for the duration of the program. By the end of the program, you can expect to have a product roadmap, business and financial plan, basic legal understanding, sales training and expanded professional network.



The Forge Business Incubator:

This is a free limited-enrollment program for anyone actively working on an early-stage business. Work with professional advisors to take your early-stage product or service to the next level. Get access to dedicated office space, prototyping equipment, one-on-one mentorship, professional services, up to \$3000 in seed funding, and the Forge's investor network. Accelerate your revenue growth, polish your product and learn to talk to investors. Incubation last 8 months with opportunity for extension up to 18 months. Applications are considered year- round. [Apply here.](#)

Health Entrepreneur Bootcamp:

A small group of pre-seed health tech entrepreneurs will spend two intensive days getting their burning questions answered and networking in the health innovation ecosystem. Covering: health economics, regulatory pathways, raising capital, IP strategy, quality and risk management. Opportunities to meet clinicians, hospital administrators, investors and other health tech start-ups.

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Innovation Factory



innovationfactory.ca

Innovation Factory (iF) is a not-for-profit Regional Innovation Centre funded by the Ontario Network of Entrepreneurs. Through workshops, programming, one-on-one mentoring and aiding with access to funding, they help start-ups commercialize their ideas and small/medium enterprises innovate within their organizations. They offer coaching and mentorship in business model generation, pitch training, market intelligence, product development, funding, financial management, sales, and much more.

Starting or growing a business? Complete the Client Application Intake Form [here](#).

LiON'S LAIR:

LiON'S LAIR is an annual competition presented by Innovation Factory and The Hamilton Chamber of Commerce that brings together the entrepreneurship and innovation community in Hamilton. The competition gives 10 companies the opportunity to pitch their ideas to a panel of Hamilton's top business experts for a chance to win over \$100,000 in cash and in-kind resources.

Synapse:

The Synapse Life Science Competition is designed to help move innovative life science products and services out of the lab and into the market, by pairing up life science innovators with business and entrepreneurship students. Life Science

Elev8:

ELEV8 is a program that showcases companies who have a product in market (or close to launch) in an investment-style pitch presentation. The event is designed to help connect iF partners, volunteer mentors and the Hamilton community with up-and-coming start-ups, is open to the public, and awards cash prizes to the Pitch Night winners.

Workshops:

A variety of workshops are offered throughout the year. *Lunch 'n Learn* events take place nine times a year and include keynote topics such as marketing & PR, angel investment, big data, equity crowdfunding, common business challenges, and many more. *Sales Peer2Peer* workshops are interactive sessions provide opportunities for business professionals to collaborate with each other, share sales best practices, and network with peers. Check the [calendar](#) for all workshop listings.

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