

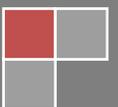
2019

***A FACULTY OF ENGINEERING STUDENT'S GUIDE  
TO STARTUPS AND INTELLECTUAL PROPERTY***

Interested in starting your own company but not sure where to start? We have this guide for you to get acquainted with the issues involved. We want this to help you on the road to success, and enable you to take control of your own path to becoming an entrepreneur.



**McGill** | Engine



## Table of Contents

INTRODUCTION .....	1
TECHNOLOGICALLY-BASED STARTUPS AND PRODUCT DEVELOPMENT STAGES.....	2
INTELLECTUAL PROPERTY .....	4
Patent.....	4
Industrial design .....	5
Trademark .....	5
Copyright.....	5
Intellectual Property Policy.....	5
GETTING STARTED .....	6
FUTURE DECISIONS.....	7
DRAWBACKS .....	7
FUNDING OPPORTUNITIES .....	<b>Error! Bookmark not defined.</b>
PARTNERS IN MONTREAL AND QUEBEC.....	8
INCUBATE - FINDING THE RIGHT SPACE TO GROW .....	9
Appendix 1.....	9

## INTRODUCTION

Entrepreneurship for the Faculty of Engineering is the process of starting and developing a technologically-driven business or other organization based on a market or societal need or opportunity. Engineers play a crucial role by providing the foundation and innovation in many new technology-oriented businesses. Strong business knowledge, skills, and know-how can help equip engineers to increase their chances of succeeding in starting up and developing their business. The McGill Engine is here to encourage and support entrepreneurship via funding, education & advice, and networking.

Entrepreneurship requires a range of skills and attitudes, aspirations, activities, support, and networks. In the longer term, successful entrepreneurship positively feeds back into the ecosystem, as experienced entrepreneurs often become mentors, advisors, angel investors, venture capitalists, philanthropists, and public speakers that serve to support and inspire others.

As part of McGill’s mission of making a positive impact on our society, increased entrepreneurship for students in Engineering will lead to a greater number of start-up organizations and the building and growth of those organizations. Entrepreneurial thinking involves the willingness and ability to convert new ideas, discoveries, knowledge, or inventions into successful innovations, that is, into useful products and services for society. Thinking like an entrepreneur requires one to be curious, creative, willing to take risks, and always questioning the status quo in order to innovate.

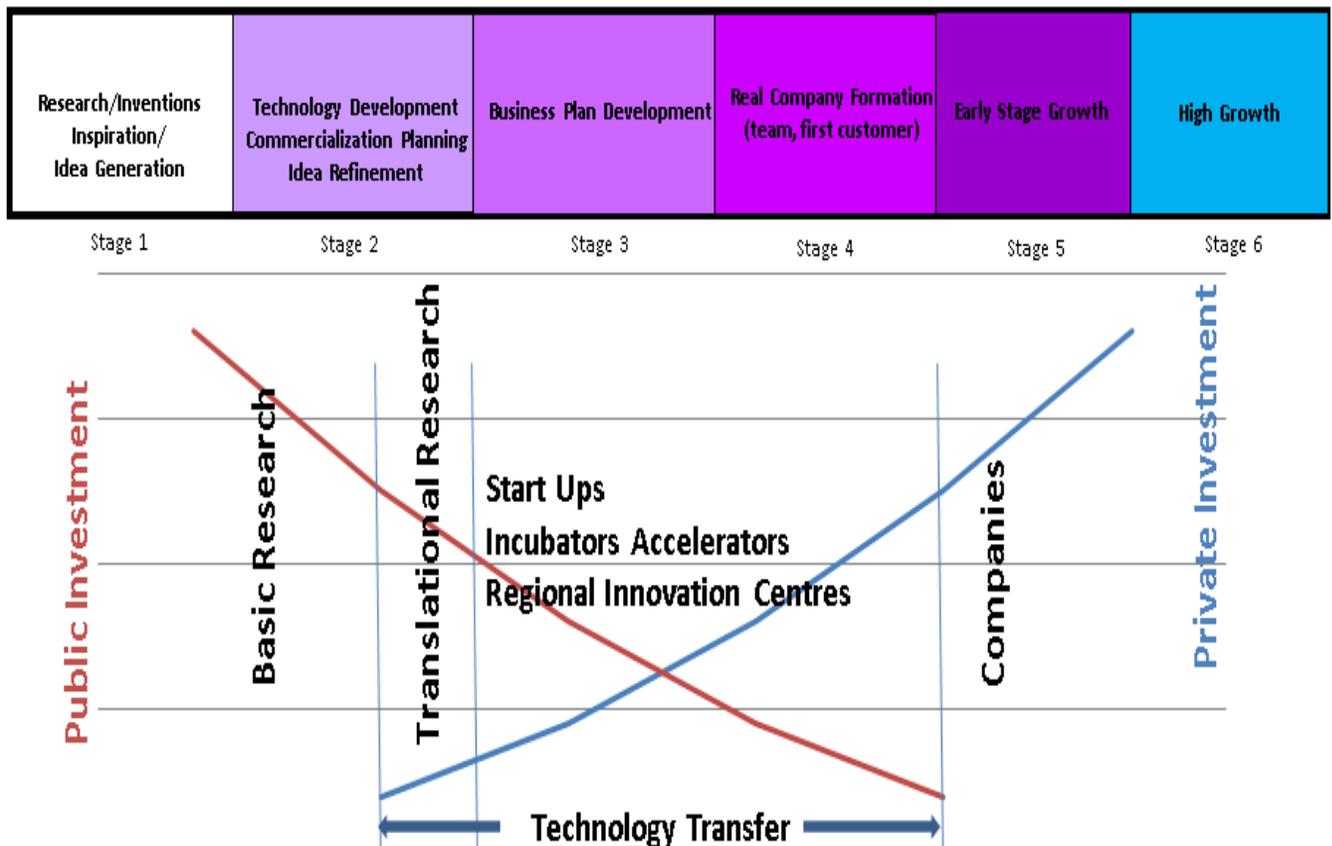
## TECHNOLOGICALLY-BASED STARTUPS AND PRODUCT DEVELOPMENT STAGES

Not all startups are the same, and for the purposes of this guide, we are focusing on the technologically-based startups (versus small business/lifestyle) where there is a high degree of uncertainty and risk but big market and high-growth potential, and typically funded by investors (angels and/or venture capital investors) that require a five to ten times return on their investment.

The typical stages in going from a new technologically-based idea with business potential to commercial sales are:

Idea/Inspiration(Customer Discovery: Problem/Solution Fit) → Idea Refinement/Proof of Concept → Technology and/or Product Development/Commercialization Planning (Customer Validation: Product/Market Fit) →Precommercial Trials and Sales →Commercial Sales

Although not always clearly marked, the path of a startup can go through so-called incubators and/or accelerators, which can help a good idea grow into a fully formed company. Incubators and accelerators typically offer early-stage companies a space to work; amenities like food, drinks, and office supplies; access to experienced executives to serve as mentors; and legal and accounting services. Accelerators will typically provide investment funding and in return, take a cut of a company's equity, often at a deep discount.

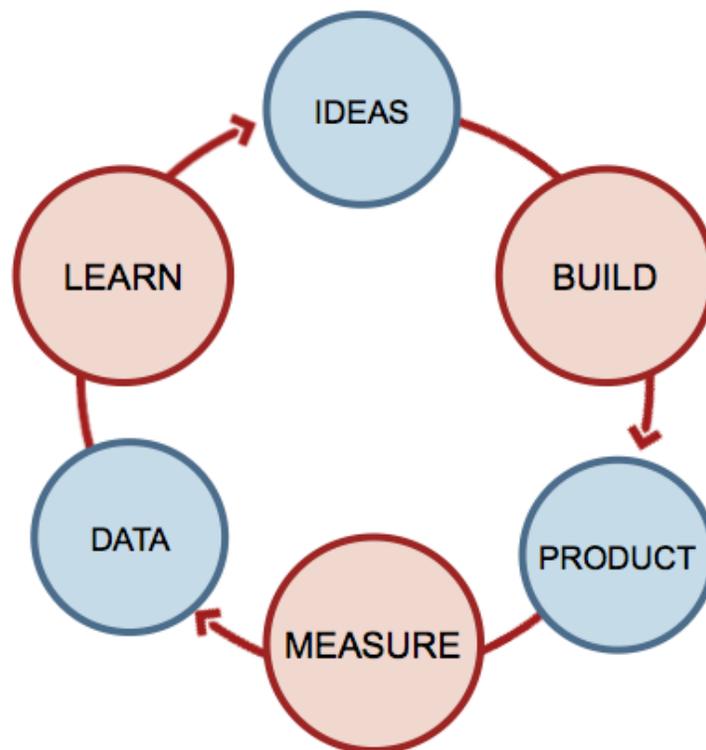


To determine whether the business idea is viable, a feasibility analysis should be done. This preliminary evaluation of the business idea will help determine whether the idea is worth pursuing. The four main components to assess are:

- 1) Product/Service – What is the overall appeal? Will prospective customers want it?
- 2) Industry/Market – What is the attractiveness of the industry? Is the target market large enough?
- 3) Organizational – Does the proposed team have enough management expertise and competence to launch a business?
- 4) Financial- What is the overall financial attractiveness of the proposed venture? What is the total start-up cash needed in order to get to first sales?

For the technology and product development stage, a design and development plan will need to be created.

The Lean Startup by Eric Ries is a book used at McGill in business planning and technological entrepreneurship courses and is recommended reading since it provides a methodology for creating and managing startups and getting a desired product to customers' hands faster. A core component of Lean Startup methodology is the **build-measure-learn feedback loop**. The first step is figuring out the problem that needs to be solved and then developing a minimum viable product (MVP) to begin the process of learning as quickly as possible. Once the MVP is established, a startup can work on tuning the engine. This will involve measurement and learning and must include actionable metrics.



## INTELLECTUAL PROPERTY

Developing an IP strategy is also an important aspect of starting up a technologically-based company. Important questions to consider: Does the company own its IP? Has the company protected its IP? Is the company infringing the IP of a third party? Therefore, understanding the basics of IP is a good place to start.

### *Understanding the basics*

From Canadian Intellectual Property Office; <http://www.cipo.ic.gc.ca>

**Intellectual property (IP):** In the broadest sense intellectual property is all the creativity (cognitive function that results in a new way of viewing a problem)); aptitude (assessment of a problem and potential solutions); and skills (application of a unique tool set to reduce the solution to practice by experimentation). Under intellectual property law, the creator(s) and owner(s) may be granted rights to exclude all others from practicing such intangible assets, such as musical, literary, and artistic works; discoveries and inventions; and words, phrases, symbols, and designs. Common forms of intellectual property, enforceable and protectable by statute include copyrights, trademarks, patents, industrial design rights and trade secrets.

### **Patent**

A patent is a government grant giving the right to exclude others from making, using or selling an invention. A Canadian patent applies within Canada for 20 years from the date of filing of a patent application. The patent application is available to the public 18 months after filing. Patents cover new inventions (process, machine, manufacture, composition of matter), or any new and useful improvement to an existing invention.

To be eligible for patent protection, the invention must be:

- New — first in the world;
- Useful — functional and operative; and
- Inventive — showing ingenuity and not obvious to someone of average skill in the field of invention.

The invention can be:

- a product (e.g., door lock);
- a composition (e.g., chemical composition used in lubricants for door locks);
- a machine (e.g., for making door locks);
- a process (e.g., method for making door locks); or
- an improvement on any of these.

In Canada and in the US, patents are granted to the first applicant. You should consider the option of filing as soon as possible after completing an invention in case someone else is on a similar track. For more information about US patents, go to <http://www.uspto.gov/>

Public disclosure of an invention before filing may make it impossible to obtain a patent. There is an exception in Canada and the United States if the disclosure was made by the inventor, or by someone who learned of the invention from the inventor, less than one year before filing. Most other countries require filing before use or written disclosure anywhere.

## **Industrial design**

An industrial design is the visual features of shape, configuration, pattern or ornament, or any combination of these features, applied to a finished article. For example, the shape of a table or the shape and decoration of a spoon may be industrial designs. An industrial design must have features that appeal to the eye. To be eligible for registration, your design must be original. Canada's Industrial Design Act (R.S., c. 1-8) provides 10 years of exclusive protection for industrial designs that are registered.

## **Trademark**

A trademark may be one or a combination of words, sounds or designs used to distinguish the goods or services of one person or organization from those of others in the marketplace. One of the most important assets your business has is its brand. It represents your company's reputation and the quality of your products and services. When customers connect your products and services to your brand you gain from customer loyalty and repeat sales.

Your brand can be shown in many ways. It could be a brand name or the shape of your brand product or its container. In any event, you should protect it under law, and the way to do that is with a registered trademark. Registration protects your trademark from misuse and gives you the exclusive rights to use it throughout Canada for 15 years (renewable).

## **Copyright**

In general, a copyright is the sole right to produce or reproduce a work or a substantial part of it in any form. It includes the right to perform the work or any substantial part of it or, in the case of a lecture, to deliver it. If the work is unpublished, copyright includes the right to publish the work or any substantial part of it. Copyright provides protection for literary, artistic, dramatic or musical works (including computer programs) and other subject-matter known as performer's performances, sound recordings and communication signals.

When you own copyright on a work you can control how it's used. Others who want to use the work have to buy or otherwise get your permission. You can limit use to protect the value of the copyrighted work. Even though copyright protection is automatic, registration gives you evidence of ownership. The certificate issued by CIPO upon registration can be used in court for this purpose. Copyright in Canada generally exists for the life of the author plus 50 years following death. After that, the work becomes part of the public domain and anyone can use it. However, there are exceptions.

## **Intellectual Property Policy**

The current McGill Policy on Inventions and Software has been in place since 2017. It sets forth the rules applying to ownership, distribution, and commercial rights to intellectual property developed by McGill University academic staff, administrative and support staff and students, as well as procedures that govern the use and distribution of intellectual property. The objectives of the policy are:

To serve the public interest by contributing to the development of useful and morally acceptable products, services, and processes;

To contribute, to the extent possible, to the socio-economic well-being of Quebec and Canada;

To ensure equitable returns to the University in support of its academic mission, to affiliated institutions, and to the Inventors.

The policy can be found online at

[https://mcgill.ca/research/files/research/policy\\_on\\_inventions\\_and\\_software.pdf](https://mcgill.ca/research/files/research/policy_on_inventions_and_software.pdf)

The policy applies to IP that is developed by academic and non-academic staff, and students (generally graduate students). In these cases, IP is jointly and equally owned by McGill University and the inventors, and must be reported to the Office of Technology Transfer (OTT), only if the inventors wish to pursue commercialization. Inventors shall not protect or commercialize inventions or software independently of McGill. The OTT manages McGill's IP.

If the IP is outside the research area of the academic staff or graduate students and developed without McGill resources, it does not fall under the policy.

The policy does not apply to students if they are the sole inventor, that is, they created the invention and/or software on their own, with no contribution from a McGill employee, whether academic or administrative and support staff will apply.

When McGill is the lead to commercialize the reported IP, costs of protecting the IP such as through patenting are covered by McGill and are recovered when commercial agreements, such as options and licenses, are established with third parties. The third party can be an existing company or a start-up company. The net revenues from a license agreement are shared with the inventors, 60% to the inventors, 40% to McGill. The financial terms of the licenses are negotiated by the technology transfer managers of the IDEA team on a case by case basis and are in line with market forces.

When McGill is not the lead to commercialize the reported IP, McGill will assign its share of the IP to the inventors who can then pursue commercialization on their own. Under this "alternate option", the revenues shared between the inventors and McGill follows a different ratio.

The guidelines on the application of the policy on Inventions and Software can be found here:

[https://mcgill.ca/secretariat/files/secretariat/guidelines\\_on\\_the\\_application\\_of\\_the\\_policy\\_on\\_inventions\\_and\\_software\\_0.pdf](https://mcgill.ca/secretariat/files/secretariat/guidelines_on_the_application_of_the_policy_on_inventions_and_software_0.pdf)

## **GETTING STARTED**

Drop by the McGill Engine Centre or make an appointment with the Associate Director, [katya.marc@mcgill.ca](mailto:katya.marc@mcgill.ca), tel:514-398-3355 or with one of the technological Entrepreneurs-in-Residence.

Complete the business idea form found in Appendix 1 to help better describe your needs.

## **FUTURE DECISIONS**

Company Name: This should be distinct, memorable, and clear of other existing businesses in similar market spaces. No matter where you incorporate your business in Canada, you will need to have a name search done to determine the suitability of the corporate name you have chosen.

Company Logo/Branding Materials: Can be developed after the company is established, but should have in place before web or product launches, including trademarks on the company name and logo.

Corporate Structure: In Canada, they are basically four forms of business ownership:

- sole proprietorship
- partnership
- corporation
- cooperative

Details on how to incorporate your business in Canada can be found here:

<http://sbinfocanada.about.com/od/incorporation/a/incorporate1.htm>

Mailing Address: A headquarters may start in a residence, but typically soon moves to a separate office space when operations begin.

Website: A necessity in today's world - secure a domain name and expand the website to be your marketing tool.

Accounting/Finance System: It is important to comply with all relevant federal, local and provincial tax requirements.

Business Insurance: Essential to protect the business.

## **DRAWBACKS**

Starting up a new technologically-based company is a high risk endeavour. While many startups are successful, others are not. Some problems:

Inexperienced Management- A strong, experienced, cohesive team is beneficial for a successful startup company. Problems can arise if founders or other members of the team do not have enough startup and business experience or if founders, new management, and investors are not working as a team.

Lack of Funding- A startup needs sufficient capital to overcome challenges, reach milestones, and progress to the next phase of development. To attract investors the company must have a sound business plan and management team.

Technology Does Not Meet Commercial Need- Sometimes science and engineering are innovative and exciting but do not meet a critical commercial need, or current solutions are a better option than the new technology.

Promotion - You can have the best technology, but if customers don't know you exist, or they don't know how your technology solves a problem for them, your start-up will fail.

Timing- The company can miss the market, even when there is a commercial need. This may be due to the market not being ready for the product, it could be too expensive, too early or an unrecognized need. The product/technology can also be too late to the market and the need has been met with another technology.

Small Market- The target market may be smaller than expected and the company may not be able to meet financial requirements.

## **PARTNERS IN MONTREAL AND QUEBEC**

If you're ready to build your business in Montreal, business and community development assistance programs can help. Programs/Resources include:

- Info-Entrepreneurs - centralized information resource [www.infoentrepreneurs.org](http://www.infoentrepreneurs.org)
- Fondation de l'entrepreneurship, est. 1980 – products and services, including mentorship via Réseau M, [www.reseaum.com](http://www.reseaum.com)
- YES Montreal – support services for finding employment and starting businesses, including Entrepreneurship Mentorship Program [www.yesmontreal.ca](http://www.yesmontreal.ca)
- SAJE-accompagnateur d'entreprises [www.sajeaffaires.org](http://www.sajeaffaires.org)
- Fondation Montreal Inc.- start-up grants and expert advice, and The Zone (space for Laureates and Entrepreneurs who have been selected by the Fondation) [www.montrealinc.ca](http://www.montrealinc.ca)
- Notman House-Montreal's technology hub and home of the web, open to the general public <http://notman.org>
- The OSEntreprendre Contest is an organization that MOBILIZES a large network of partners to PROMOTE entrepreneurial initiatives in order to INSPIRE more people to believe in themselves, to transform their ideas into action and to achieve fulfilment. See more at: <https://www.osentreprendre.quebec/en/>
- Futurpreneur Canada offers financing, mentoring, marketing tips, accounting help and much more to make growing your company easier. - See more at: <http://www.futurpreneur.ca/en/partners/#directory> Futurpreneur Canada works with partners such as YES Montreal and SAJE to deliver their grants, loans, and services.

## **Accelerators and incubators in Montreal**

FounderFuel, Ecofuel, Tandem Launch, CEIM, Centech, Inno-centre

## **Investors in Montreal**

i-Novia, Tandem Launch, Real Ventures, Rho Canada Ventures, Cycle Capital Management, Amorchem

## **INCUBATE - FINDING THE RIGHT SPACE TO GROW**

The McGill Engine can help you find the right start-up incubator to meet your business requirements and surround you with peers, resources and mentors that share your passion.

Most incubators are sponsored by economic development organizations, partially subsidizing the costs and increasing the ancillary services offered to entrepreneurs. These services can range from professional services, connections to funding resources, regulatory compliance and IP management.

## **Appendix 1**

### **BUSINESS IDEA/PROJECT DESCRIPTION**

Date:

Family Name, Given Name and e-mail:

Name of Company or Working Project Title:

**What is your business idea (for profit or not-for-profit)?** *Describe in one or two sentences the product/service.*

**What need are you addressing?** *What are the problems, conditions or events that will make this business attractive or successful?*

**Which market are you addressing?** *Who is this being sold to? What are the characteristics of the target market (demographics, size, growth rate)?*

**What is the value proposition to the customer?** *Why would they buy this product/service? What are the benefits to the customer?*

**What is your competitive advantage?** *Who are the competitors/alternative solutions? What are customers doing now? What unique characteristics do you have that would give you an advantage? Is your product/service patentable or otherwise protectable?*

**What is your revenue model?** *How will you get paid?*

**What is your distribution model?** *How will this be sold? Who will do it?*

**What actions have already been taken/the current status?** *Conducted market research? Built a prototype?*

**Who are the promoters/managers?** *List current team members with school affiliation and graduation year where appropriate. What role or function will each play? What additional talent do you need to start the company?*

**Who are your advisors?** *List faculty and other advisors if you have them and/or background or expertise of advisors that you would like to find.*

**What resources will be required?**