



Introduction to Intellectual Property and Commercialization

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Outline

- First lecture
 - Basics of Intellectual Property
 - Intellectual Property rights at McMaster
 - The Commercialization Process
 - How MILO can help
 - Entrepreneurship
- Second Lecture
 - More Details on Patents and Patent Searching
- Third Lecture
 - More things to know if you want to license your technology or start a company



Intellectual Property (IP)

- Definition: 'Creations of the mind', such as inventions, artistic works, designs, or names
- In legal terms: Exclusive right which allows the owner to exclude others from using the IP
- In business terms: Part of the intangible assets of a company; value derived from the sale, licensing, or as a defensive tool



Main Forms of IP

- **Patents** – inventions
- **Copyrights** – written works, recordings, movies, software, pictures
- **Trademarks** – brand names, phrases, logos, web addresses, distinctive designs or symbols
- **Trade Secrets** – formula, processes, designs, information not known to the public



Patents

- Protects an invention - composition of matter, process, machine, or improvement thereof
- Need to file a patent application in each country, giving full disclosure
- Patent owner gets to exclude others from practicing invention
- Term of patent is typically 20 years from first filing (Canada and US)



Patents

- What do they protect?
- Four basic requirements:
 - Subject Matter
 - Utility
 - Novelty
 - Non-obviousness
- Application process



Patent Protection

- Covers the idea disclosed – process, machine, composition of matter
- In return for full disclosure, owner gets to exclude others from practicing invention for a period of time (generally 20 years from first filing)
- Requires application and approval of patent in each country where protection is sought



Patent Applications

- Individual countries issue patents
 - European Patent Office
- Countries differ on whether or not a patent can be filed if there has been disclosure
- One application can get process started in lots of countries
 - Patent Cooperation Treaty (PCT)



Patent Logistics

What is Patentable?

- Must be novel, useful, and non-obvious
- Do not need a prototype, but patent application must provide complete description of the invention

Who is an Inventor?

- Someone who provides intellectual input into the claims of a patent
- NOT the same as an author of a paper



Patent Process and Cost

ACTIVITY



TIME 0 1 yr 2.5 yrs Takes 1-3 yrs 2-7 yrs after filing Due at 3.5, 7.5, 11.5 yrs after issued 20 yrs after filing

COST \$100-5K \$6-10k \$2-10k \$5-30k \$2-6k / country \$5-10k / country **TOTAL** \$15-40K / country

Bottom Line: Can take between 2 to 7 years to get patent issued and cost hundreds of thousands to get patent coverage in Canada, US, Europe, and Asia



What is novel?

- **Public Disclosure:** Any publicly available written, electronic or oral description of the invention - includes papers, abstracts, posters, presentations, meetings.
- In general, course meetings and discussions are OK, but discussions with companies or other researchers who are not under a confidentiality agreement is considered public disclosure
- **IMPORTANCE OF PUBLIC DISCLOSURE:** Any public disclosure may prevent or limit ability to patent (exception of 1 year grace period in Canada and US)



Publishing or Presenting vs. Patenting

Will patenting prevent you from publishing work?

- No, once you file a patent application, you are free to publish or present publicly (only what was included in the patent filing)
- Preparation of patent filing (provisional) can take as little as 2-6 weeks
- Good idea to contact tech transfer office if you have question



Recap on Patents

- Protects the idea
- Requires a full disclosure in application
- Requires application in each country that patent rights are sought
- Only as good as ability to enforce
- Reasonably expensive



Copyright Protection

- Protects Expression of Idea
 - Chocolate Chip Cookies
- No registration required
- Protection is international
- Most likely applications:
 - Source and object codes
 - Manuals
 - Web sites (including imbedded code)



Ownership of Copyright

- Usually first author
- 'Work for hire'
 - Requires employment situation
- Consultant or Contractor rights
 - Get sign-off of ownership rights from contractor in writing
- Special rules for joint work



Moral Rights in Canada

- Extension of rights in some jurisdictions includes moral rights:
 - Right to prevent detrimental changes to work
- Snow v. Eaton Centre
 - Implications for contractors work





Copyright Length of Protection

- In Canada:
 - Life of Author + 50 Years
 - Anonymous work: 50 years from publication
- In US
 - Generally life of Author plus 70 years
 - Work for Hire: Life of Author + 95 Years
 - Anonymous work: 95 years from publication



Registration Systems

- Copyright can be registered
- In Canada
 - Online registration available
 - No 'deposit' or filing of original work
- In US
 - Different forms for different types of works
 - Requires filing of original work



Notice Requirements

- © notices not required
- But good practice to warn people about your copyrights
- In reverse:
 - Just because no © or other copyright notices does not mean that such rights do not exist



Infringement of Copyright

- Any copying or use without permission of owner is an infringement and can be actionable
- Even no money situations can lead to infringement
- Real problem is legal fees



Recap on Copyrights

- Protects the expression of an idea only
 - Can't reach through to idea
- No registration required
- Notice © a good idea
- Be careful of use of other's material
 - Requires permission, may not always require \$\$



Trade-marks

- Protects the name that goods and services are being sold with
- May be most valuable IP of a business
 - e.g. Coca-Cola; Google; Xerox
- Need to enforce or may become generic
- Can generate money from licensing



Common Law vs. Registration

Common Law

- Certain rights created just by use
- Limited to geographic area in which business trades

Registration

- Gives constructive notice of use
- Gives legal rights to enforce



Business Names Registrations

- Incorporation of company and business name registrations do not create trade-mark rights
 - Biggest trap that entrepreneurs get into!
- Trade-mark rights centre around use with defined goods and services



Application Process

- Can only register distinctive marks
 - Corn Flakes; Windows
- Application online or on paper in Canada and US
- Register name or design in association with defined goods and services
- Registration only allowed when in actual use
 - May apply with intent to use
- Term is 15 years from issuance; renewable as long as use and fees maintained
- Cost approximately \$1 to 3K/country



Trade-marks Recap

- Name used with goods and services
- Very strong protection if properly registered
- May lose rights for failure to police



Trade Secrets Protection

- Parties can agree by contract for anything
- Agree with people not to tell a secret
- Examples
 - Coca-Cola recipe
 - Algorithms
- Downside:
 - If secret learned without breach of contract, no protection
 - Even if breach, limited damages



Trade Secrets in Practice

- For any business with employees and contractors need to get everyone to sign agreement
- Some legal weight
- A lot of moral weight
- Employees have an implied obligation in many cases
- Non-competes and non-solicitations



Other Protections

- Plant Breeders Rights
- Industrial Designs
- IC Topographies
 - Usually confined to specific areas



Conclusion on Protection Regimes

- Patents
 - Inventions, ideas reduced to practice
- Copyrights
 - Expression of ideas
- Trademarks
 - Name used to sell things
- Trade Secrets

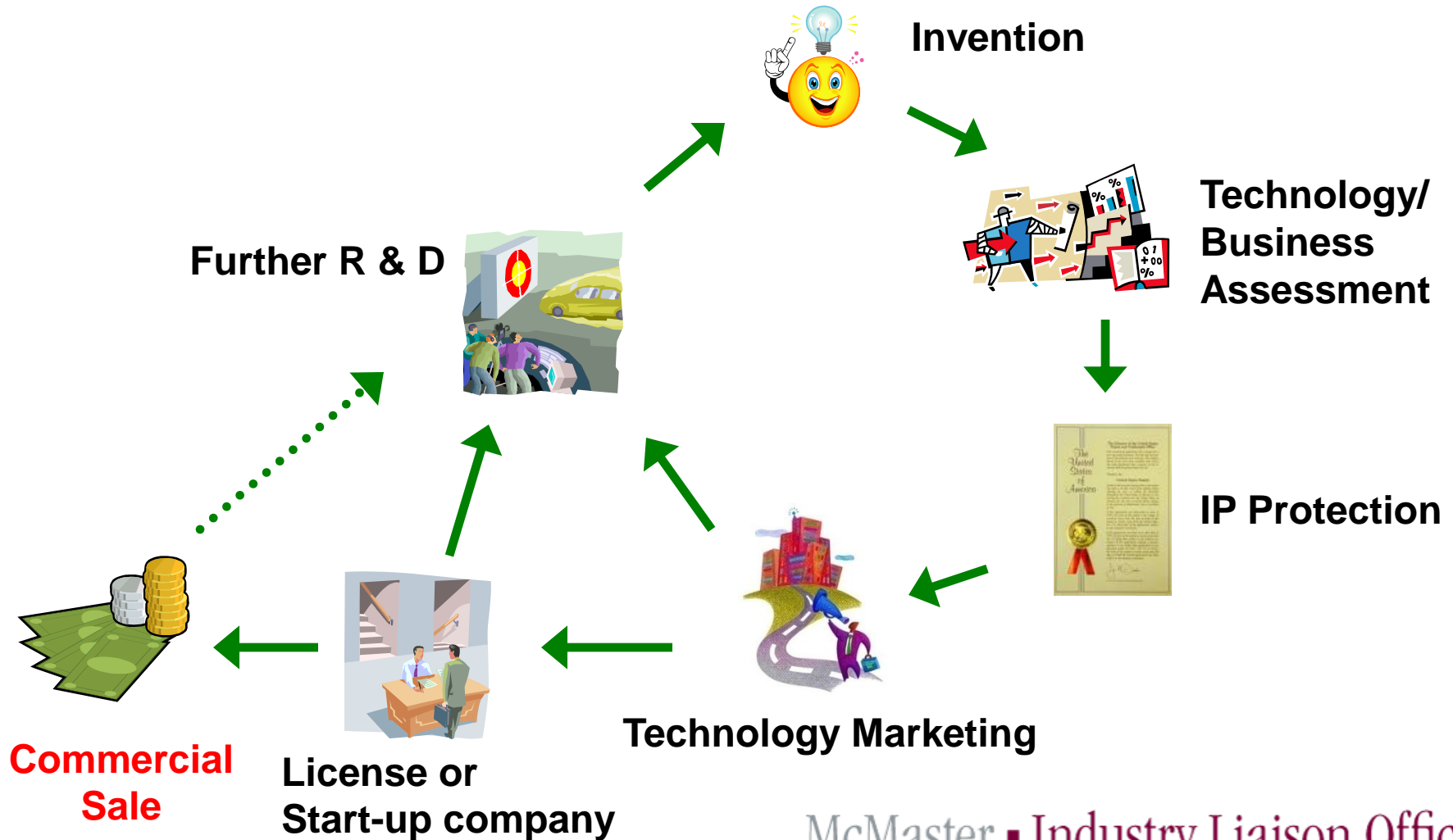


IP and the Knowledge Society

- Most businesses rely on some or all:
 - New ideas and know-how (patents and trade secrets)
 - Brands and names (trade-marks)
 - Designs, databases and software (copyright and industrial designs)
 - Music, movies, and written work (copyright)



Commercialization Process





Intellectual Property at McMaster

- McMaster's Joint Intellectual Property Policy covers Faculty, Graduate Students and Staff at McMaster, Hamilton Health Sciences, and St. Joseph's Health Care Hamilton
- In general, undergraduate students own the results of 4th year projects they conceive of on their own (unless there is an employment relationship or collaboration with a university lab – things may get more complicated)



McMaster Industry Liaison Office

- Facilitates the identification and protection of commercially significant technologies arising from academic research
- Enables the development and transfer of research results (intellectual property) from academia to society through commercialization
- General focus is on faculty and graduate student research but can support undergraduates who wish to commercialize their ideas



Services provided by Tech Transfer Offices

- Evaluate Inventions and Invention Disclosures
- Manage Intellectual Property (file, prosecute and maintain patents)
- Develop Commercialization Plans
- Assist with applying for Commercialization Grants
- Negotiate and Manage Confidentiality and License Agreements
- Help Find Industrial Partners



Some thoughts on Entrepreneurship

- Why start a company ?
 - Can be very rewarding professionally (and financially)
 - Opportunity to work on your own invention (your passion)
 - Often have to learn many different things quickly
 - Generally pays less than industry with longer hours but potential for upside
 - You don't want to work for someone else
 - Opportunity cost might be very low (can't find a job...)
 - Your appetite for risk may be at its highest



Startup vs. License

- **Startup**
 - Good for platform or “disruptive” technology
 - Need to identify solid business plan/team
 - Raising funds is often perceived as biggest challenge
- **License**
 - Often preferred route for “sustaining” technologies
 - Preferred route for inventors who want to move on to other things
 - Typical consideration is a royalty based on sales, one time or milestone fees, or equity in company (if company is small). Can be combination.



Importance of IP to a Start-Up

- Company valuation
- Ability to build partnerships with other companies
- Provides legitimacy
- Creates reputation and image as high tech company
- Infringement concerns



Basic Licensing Terms

- Grant of Rights: Exclusive, Non-exclusive, or Field of Use, Sublicensing; retain research rights for University
- Consideration: Upfront fees, Royalties, Milestone payments, Patent costs
- Liability, Warranty, Insurance requirements



Questions?

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