

UW, Intellectual Property & Commercialization Primer

2020

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DISCLAIMER

- This presentation contains general information and does not constitute legal or patent advice.
- Nothing in this presentation should be considered as me giving you legal advice for any specific situations.
- If you have a specific legal or patent problem, you should consult with an appropriately qualified professional.

Introduction

- This information package will provide you the basics of Intellectual Property (IP), it will help you to identify the different forms of IP that may be used to protect your idea/creation.
- This package also covers how to commercialize your IP.
- In addition to the slide deck, there are two short scenarios (case studies) that walk you through the identification of IP in a realistic situation that you may find yourself in and the identification and assessment of the commercial potential.
- This package serves as a primer, a first step introduction to the world of IP and Commercialization.

TYPES OF INTELLECTUAL PROPERTY PROTECTION

Intellectual Property is an “umbrella” term covering:

- Patents
- Trade-marks
- Copyrights
- Industrial Designs
- Trade Secrets
- A few others...

PATENTS

What do patents protect?

- Products and process (aka devices and methods).

Length of patent protection?

- Typically 20 years from date of filing patent application.
- *Changes coming with the introduction of the USMCA.

PATENTS

A few examples...

X-ray computed tomography apparatus, US Patent #10,660,190

Power amplifier with supply switching, US Patent # 10,658,979

Micro-LED displays, US Patent # 10,658,422

LED display panel, US Patent #10,658,345

Method and system for legal parking, US Patent #10,657,732

Trademarks

What do Trademarks protect?

- Goods and Services (aka Brand names and slogans)

Length of Trademark protection?

- They can be renewed indefinitely

Trademarks

A few examples...

Names: Apple, Coca-Cola, Microsoft Windows, Ford

Slogans: “I’m loving it” – McDonalds

“Coke is it!” – Coco-Cola

“Tested for Life in Canada” – Canadian Tire

Copyright

What does Copyright protect?

- Copyright protects the expression of an idea.
- Copyright does not protect the idea itself.
- The purpose of Copyright is to prevent unauthorized copying of protected works.

Length of Copyright protection?

- The life of the Author plus 50 years.
- *Changes coming with the introduction of the USMCA.

Copyright

Types of Works protected:

- Literary
- Dramatic
- Musical
- Artistic

Some Examples:

Books, Movies, Songs, Software Code, Thesis (PhD or MAsC), Instruction Manuals, Operators Manuals, etc.

Industrial Designs

- Only protects a product's appearance—not what it is made of, how it is made or how it works.
- The design must be original; it cannot closely resemble another design.
- An Industrial Design may last 5-15 years.

Industrial Designs

Some Examples:

- The shape of the iPhone
- The specific shape of a laser printer cartridge
- The shape of a unique water bottle

Trade Secrets

- Trade secrets are the simplest, easiest and least expensive form of Intellectual Property protection that you can obtain.
- If you know something that is valuable, keep it a secret!
- Typically used to keep methods or formulas a secret.
- Not particularly useful if reverse Engineering possible.

Worlds most popular and best kept Trade Secret?

- The secret formula for Coca-Cola
- The ingredients are listed right on the bottle or can.
- How exactly they are combined to create Coke is a tightly held secret.

INTELLECTUAL PROPERTY POLICY (Policy #73)

INVENTORS OWN:

- No obligation to share with the University
- UW reserves right to use any IP for non-commercial research and teaching purposes
- Own results of thesis publication and any patentable subject matter (subject to any restrictions arising from sponsored research contracts)
- Requirement to disclose if there is intent to commercialize (eg. filing of patent, license deal, startup created, etc.) - **only applicable to faculty members**

Local Resources

- WatCo (including WatCo's live streamed in depth IP Talks with experts)
- Velocity / Concept
- Accelerator Centre
- Communitech Hub

WATCO

Who are we and what can we do for you?

Remember:

When in Doubt, Seek us Out!

COMMERCIALIZATION

- **Process** by which a new product or service is introduced into the general market.
- Commercialization is **broken into phases**, from the initial introduction of the product through its mass production and adoption.

Commercialization Phases



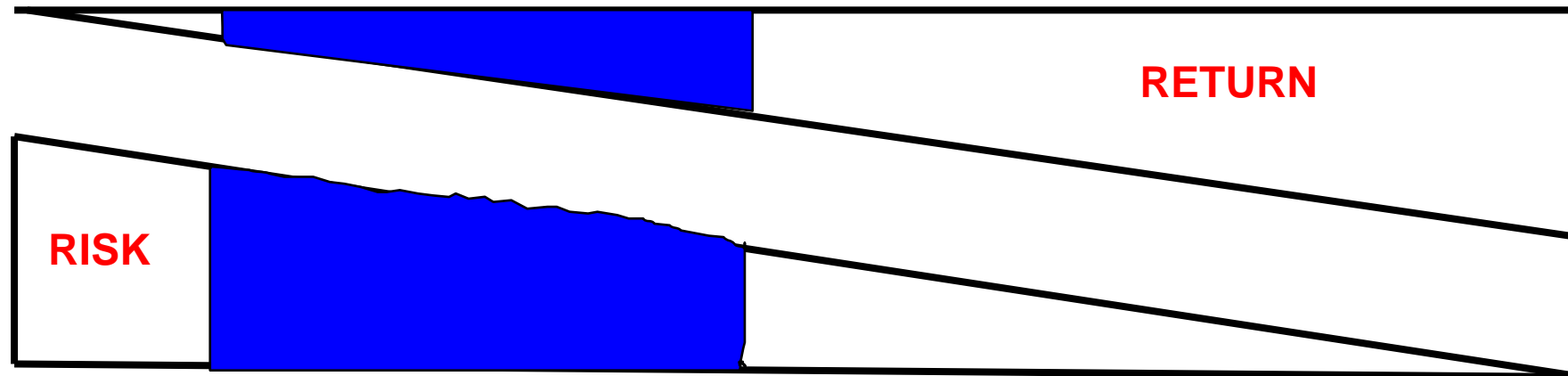
- Grant Proposal

- **Discovery**
- **Verification**
- **Documentation**
- **Patent Protection**

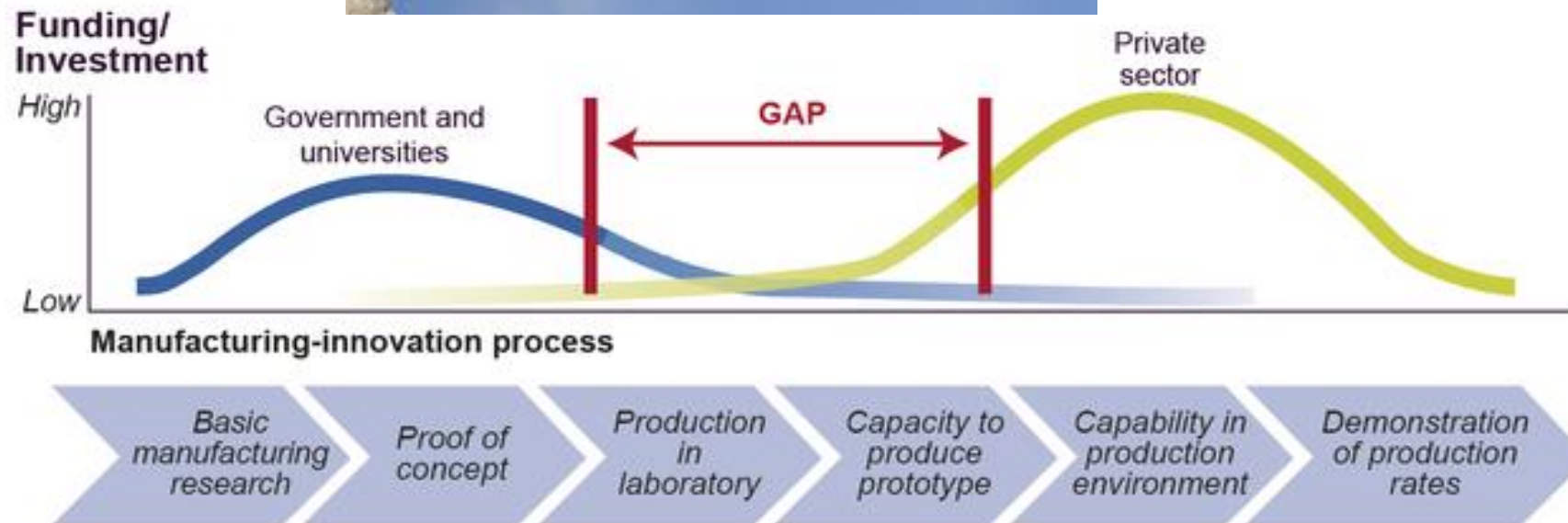
- **Design Eng.**
- **Prototype**
- **Proof of Concept**

- Detailed Specifications
- Production Model

- Marketing
- Sales
- Competition



Commercialization “Valley of Death”



Source: GAO adapted from Executive Office of the President.

Pre-Commercialization Activities

- ➔ **Confirming Technology Pedigree** – who invested in development and who has rights ?, who are inventors or software authors ?, disclosure and prior art status, taking assignment of rights **all the legal stuff investors or licensees will eventually want to know about**
- ➔ **Opportunity Assessment** – identify “market pain”, market size, barriers to entry, commercial pathway...**spin-off vs. licensing ?, define the opportunity in commercial terms that justifies investment**

⇒ IP Protection

- ⇒ **If patentable idea** - investment in patent costs to create an “asset” that preserves the commercial opportunity ...
managing the complexity of patent administrative issues
- ⇒ **If software** – protected under copyright law (copyright is established upon completion of the work.. No formal requirement to register or otherwise incur legal procedures)
 - ⇒ Copyright is granted to the authors of the code (ideas are not protected by copyright.... Expression of ideas is what is protected, thus those who coded the software are the owners)
 - ⇒ Use of open source code – what were the licensing terms and restrictions on using code ? (ie. MIT, Apache, GPL ?)
 - ⇒ Work-for-hire relationships – generally if you’re paid to code, then the employer under common law is the owner of the copyright in the software
 - ⇒ Waiver of moral rights might be required in some instances (e.g. GUI development)

...sorting this out can sometimes be complicated and often requires legal assignments to package up rights properly

- ⇒ **Prototype Development** – source funding for proof of concept projects
... validating performance & advancing commercial readiness
- ⇒ **Marketing** – develop promotional materials (print, video, web, conference) and meet with companies\investors ...get market feedback and engage potential partners
- ⇒ **Access to commercialization professionals and strategic network partnerships** ... expertise in putting together a commercialization strategy, making deals (startups, licensing), securing management talent

Commercial Assessment Worksheet

- Need to evaluate a broad number of factors
 - See related MS Excel spreadsheet for context
- If initial assessment looks positive, undertake a deeper SWOT (Strengths, Weakness, Opportunities, Threats) analysis (next slide)

Strengths, Weaknesses, Opportunities, Threats (SWOT) ANALYSIS

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Strengths

- Technical Advantages or Unique characteristics
- Cost advantages ?
- Disruptive technology ?
- Sustainable competitive advantage ? (IP, business model, distribution channels?)
- Many market applications ?
- Geographical advantage, location
- Competence, team capabilities are good fit

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Weaknesses

- Disadvantages (increased cost, long time to market, etc)
- Lack of prototype or other validation data
- Requires significant capital investment
- Very limited or “niche” market
- Not Inventor’s main area of expertise
- Geographical factors
- Competitor’s are large with well established sales\distribution infrastructure

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Opportunities

- Magnitude of profit potential ?
- New Product development or enhancement to existing product ?
- Is there an ongoing need or “limited window” ...timing ?
- Startup (Disruptive?)
- Licensing (Enhancement ?)
- Co-develop opportunity with partners

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Threats

- Many competitors
- Only marginal value proposition to end-user (eg. 5% energy efficiency gain)
- Regulatory uncertainty
- Uncertain market trends
- Disruption likelihood (is it an active space that is R&D heavy) ?

What is the Value Proposition ?

- ➔ **Very important to understand this : what “pain” is solved and what does it mean to your potential customer ?**



MIT 15.390X. (2016, July 1). *Quantify the Value Proposition: Bill Aulet (Pt 1)* [Video]. YouTube.
<https://www.youtube.com/watch?v=vTnav1kn9hM&feature=youtu.be> under creative commons license
<https://ocw.mit.edu/terms/>

Commercial Assessment Summary

- ⇒ How big is market (revenue, # units, territory ?)
- ⇒ What are market obstacles ? (high cost of investment, regulatory, degree of competition)
- ⇒ Define Market Applications (in order of most valuable to lower value)
- ⇒ Define Value Proposition for each Application
- ⇒ What is the easiest Application – “path of least resistance”
- ⇒ What are you going to do ?
 - ⇒ Licensing or Startup ?, What application and why?, Who are you going to target ?

Commercialization Routes

Licensing

- **access to established markets**
- **minimum financial risk & quicker financial returns**
- **minimal Inventor time commitment**
- **requires understanding of markets to structure an equitable license agreement**

Start-up Company

- **significant Inventor time to transfer know-how (investors will expect this)**
- **higher risk (usually requires Inventor \$\$)**
- **better suited to technologies requiring low capital investment (eg. Software)**
- **financial returns may be higher but over longer time**

LICENSING CONSIDERATIONS

- **What is a License Agreement ?**
- refers to a contractual written agreement entered into by the owner of intellectual property (ie. licensor) giving permission to another party (ie. licensee) to use the IP under specified conditions and payment expectations.

LICENSE RELATED DEFINITIONS

- **Exclusive Rights:** an exclusive right is a right granted to permit another party to use the intellectual property to the exclusion of all other parties. Exclusive rights are analogous to granting a monopoly.
- **Non-Exclusive Rights:** an non-exclusive right is a right granted to permit more than one party to use the same intellectual property.
- **Field-of-Use:** is a defined field of permissible use or application of the intellectual property (eg. automotive applications only)
- **Royalty:** is a usage-based payment made by one party (the "licensee") to another (the "licensor") for the right to use the intellectual property asset. Royalties are usually expressed as a percentage of gross or net revenues derived from the sale or use of products or services based on the intellectual property asset.
- **Sales Due Diligence:** the specification of a minimum number of sales to be achieved in each year over period in which exclusive or non-exclusive rights are granted

Exclusive

- **Field-of-use limited to capacity to deliver**
- **Patent cost reimbursement and forward carrying costs**
- **Annual exclusivity fee**
- **Royalties**
- **More stringent due diligence (eg. sales targets)**
- **Obligation to abate infringement**

Non-Exclusive

- **Field-of-use limited to capacity to deliver**
- **No patent costs**
- **Possible annual licensing fee**
- **Royalties**
- **Some due diligence (eg. sales by a certain time)**
- **No infringement obligations**

“Bricks and Mortar” of License Agreement

- **Exclusive vs. Non-Exclusive** (geographic territory, fields of use, both)
- **Term** (eg. life of patent, 5yr renewable)
- **Sub-License and Assignment Rights**
- **Licensing Fee, Royalties** (competitive technologies, market size, industry norms)
- **Sales Due Diligence**
- **Patents** (costs-who?, new IP rights)
- **Termination and Liability** (Indemnification, Performance Warranty, Patent Infringement)

What makes a Startup Opportunity?

- Disruptive technology = significant productivity or functionality enhancement (significant cost benefit isn't usually enough but ideal)
- Broad applications to many markets (eg. nanomaterial that can be used in sensors, diagnostics, coatings, optical properties, etc)
- IP protection = proprietary competitive advantage
- Preferably low capital cost to get into business (eg. Software vs. Chemical process)
- \$100M addressable market (ie. your potential share of the market)

What makes a Business ?



MIT 15.390 New Enterprises, Fall 2013 *What Makes a Business: Bill Aulet* [Video]. YouTube
<https://www.youtube.com/watch?v=cKJ0Bx3N2tQ&feature=youtu.be> under creative commons license
<https://ocw.mit.edu/terms/>

Startup Pit Falls

55% global failure rate – Why ?

- Not a clear understanding of the value proposition (lack of customer research)
- Underestimate initial financing needs (run out of cash to productize and survive initial sales cycle for initial customers)
- Execution ...**failure to add right skills at the right time** (operations, sales, etc)

- **Commitment** (full time, \$\$, passion)
- **Expectations** (valuation)
- **Mentorable** (willing to listen)
- **Hitting Milestones**
- **Communications** (pitching to customers and investors)

How Do Venture Capitalists Make Decisions?

By Paul Gompers, William Gornall, Steven N. Kaplan, Ilya A. Strebulaev
August 2016, Working Paper No. 3492 [Finance](#)



Startup mechanics

- Sir Terry Mathews (Mitel, Newbridge Networks founder, Wesley Clover investment company, over 60 technology startups)
 - “never start a company without first having a secured a customer and seasoned management”
- Build “minimum viable prototype” – get prototype into hands of potential customers for feedback
- Refine product and secure first customers (even if for free !)
- Customer Validation = Raises initial valuation for Seed investment
- Higher Valuation = Raising sufficient cash to hire “talent” and bank roll time to productize and secure customers