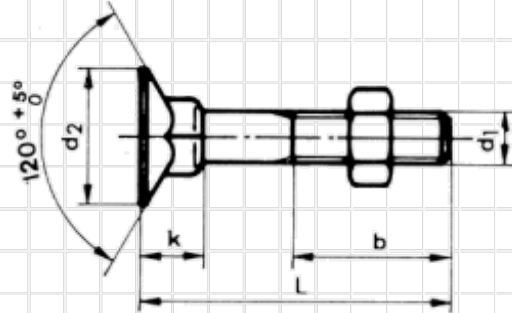


# Legal Issues



## Joe Hadzima

(MIT S.B., M.Sc. in Management; J.D. Harvard Law)

Senior Lecturer, MIT Sloan School of Management

Co-Founder, IPVision, Inc. and Neurostim Technologies

Former Partner now Of Counsel – Sullivan & Worcester LLP

jgh@mit.edu

**For Background Education Only – NOT LEGAL ADVICE**

# Life Cycle

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING	LATER FINANCINGS
<b>INTELLECTUAL PROPERTY</b>	Who Owns? -Employer -MIT -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents	Agreements -Invention Agreements -Non Disclosure (NDAs)	IP Strategy -Patent? -Disclose	Joint Ventures Appearance to Acquirer?
<b>LEGAL ENTITY</b>	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings	
<i>FOUNDERS</i>	Founders Memo -Roles -Expectation	Dividing Equity -Amount -Vesting			
<i>EMPLOYEES</i>	Immigration	-Wage Law issues? -Payroll Services	Options/Stock -Build from Charlie's Model		
<i>OUTSIDE CONTRACTORS</i>	Ownership	Tax Characterization			
<i>ADVISORS/BOARD MEMBERS</i>	Who and Expectations -Use of Name?	Document		Independent Director(s)?	
<b>FINANCING</b>		Securities Laws	Friends and Family -Convertible Notes Customer Financing -Secure IP	Angel Financing -Reputation -Financial Capacity	Professional Venture -Terms: What and Why?

# Idea Stage and Pre-Financing

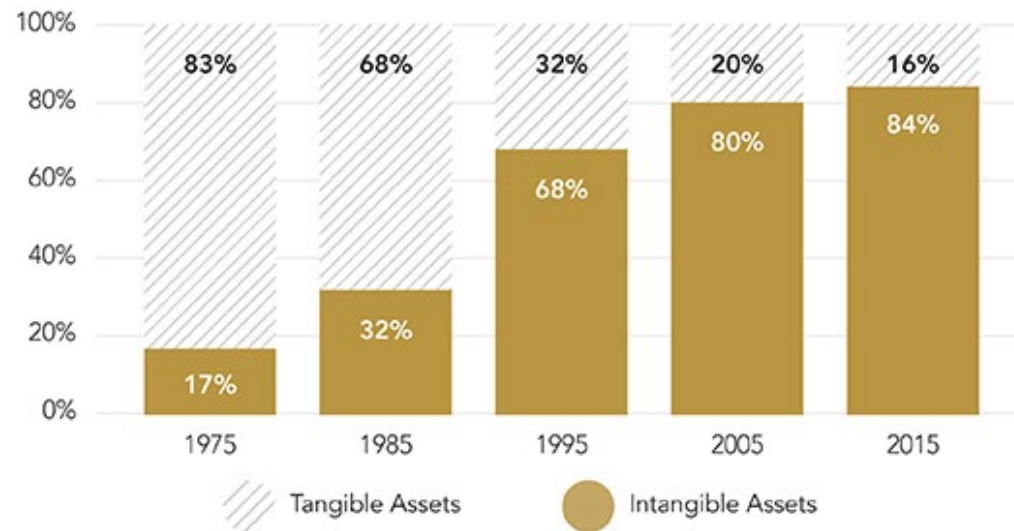
	IDEA STAGE	PRE-OUTSIDE FINANCING
<b>INTELLECTUAL PROPERTY</b>	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	
<b>LEGAL ENTITY</b>		
<i>FOUNDERS</i>		
<b>PEOPLE</b>		
<i>EMPLOYEES</i>		
<i>OUTSIDE CONTRACTORS</i>		
<i>ADVISORS/BOARD MEMBERS</i>		
<b>FINANCING</b>		

# Idea Stage and Pre-Financing

	IDEA STAGE	PRE-OUTSIDE FINANCING
<b>INTELLECTUAL PROPERTY</b>	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents
<b>LEGAL ENTITY</b>		
<i>FOUNDERS</i>		
<b>PEOPLE</b>		
<i>EMPLOYEES</i>		
<i>OUTSIDE CONTRACTORS</i>		
<i>ADVISORS/BOARD MEMBERS</i>		
<b>FINANCING</b>		

# Intangibles = Increasing % of Value

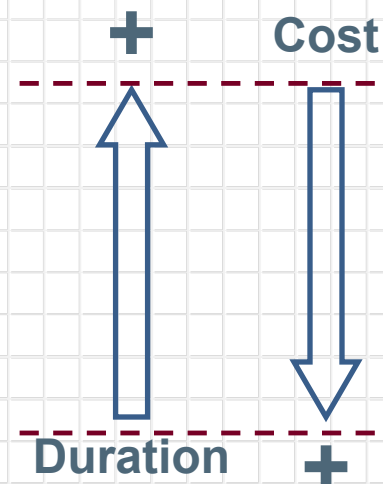
## COMPONENTS *of* S&P 500 MARKET VALUE



SOURCE: INTANGIBLE ASSET MARKET VALUE STUDY, 2017

# Types of IP Protection

- **None**
- **Trade Secret** → Can “Prevent” Others
- **Trademark** ] → Can Enhance Value  
But Don’t “Block” Others
- **Copyright** ]
- **Patent** → Cuts Both Ways
- **Combinations of Protection**
  - e.g. Software can be protected by Patent and Copyright



**Country by Country – today I will focus on the U.S.**

# Trade Secret

- **Secrets you use to give yourself an advantage in the marketplace**
  - formula for Coke
  - protection granted varies from state to state
  - lasts as long as you can keep it secret –  
**Nondisclosure Agreements (NDA)**
- **For your Venture Plan/Pitch**
  - note that you have trade secrets - keep the secrets out of the plan/pitch

# Trademark/Service mark

- **Developing a Name for Yourself** – Customers Think of You When They See/Hear the Mark. Words, Logo, **Color**, Sound
- **A Mark under which you sell Goods or Services**
  - House Mark - **Lenovo**, **Virtual Ink**, **MGM (lion's roar)**
  - Product mark – **Thinkpad**, **Mimio**, **Rocky (movie)**
  - Rights arise from use in commerce – intent to use – can last forever
  - Federal Registration: <sup>TM</sup> vs <sup>®</sup> Senior Unregistered User
- **Pick a “fanciful” mark:**
  - Apple, iPod, Mimio
- **Do NOT pick descriptive words/phrases**
  - Storage Technology, Analog Devices
- **Is the Mark available?**
  - Check availability at U.S. Trademark Database [www.uspto.gov](http://www.uspto.gov)



Christian Louboutin



# Copyright

- **The right to make and prevent copies**
  - Arises from creating a work
  - Protects the expression - **NOT FUNCTION**
    - great fit for music, not as good a fit for software
  - Federal Registration is a plus
  - Duration: Long (70+ years)
  - Cost to Register: Low (< \$100)
  - Suggested Notice: **“Copyright Year, Author – All Rights Reserved”** (see footer of this slide) Use © once registered
- **For your Venture:**
  - **Make sure you have the rights you need**
    - Owned by Author unless Employee or “Work for Hire”
  - **Check open source issue**

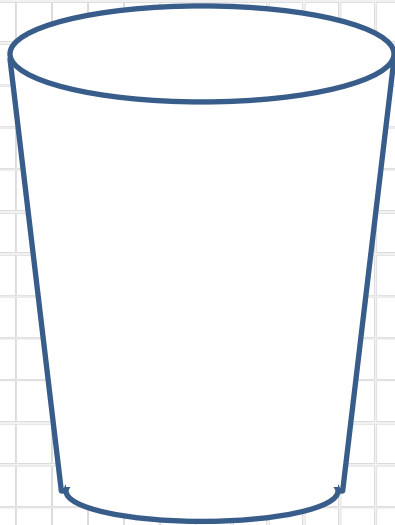
# Copyright - AI

- **Artificial Intelligence and Copyright?**
  - It is well established that only material that is the product of human creativity is eligible for copyright registration under U.S. law
  - However, on March 15, 2023, the U.S. Copyright Office announced that works created with the assistance of artificial intelligence (AI) may be copyrightable, provided the work involves **sufficient human authorship**.
    - such as when a human selects or arranges AI-generated material in a creative way or modifies material originally generated by AI technology.
- **Use of copyrighted material to train models?**

# Patents = Limited Time Monopoly

- **A Federally granted right to any system or method that is new, non-obvious and useful**
  - It has to be applied for
  - It has to be granted by the Patent Office (Country by Country)
- **Very Much Like Real Estate**
  - Right to Prevent Trespassers
  - Prevent others from making, using, selling, or distributing the patented invention
- **Ownership: Not = Right to Use**
  - Real Estate Analogy: Access Rights, Zoning, etc
- **Claims of Patent = Fence Around Property**
- **Duration - U.S. = 20 years from filing**

# Coffee Cup and Handle



You patent a vessel to hold a liquid



I patent a handle



There can be no “handle” on the “cup” without a cross license

**The owner of a patent has the right to exclude others from using his/her invention**

# Requirements to Obtain a Patent

- **Novel – Something “New”**
  - Prior Art must be cited
- **Useful**
- **Patentable Subject Matter - § 101**
  - “process, machine, manufacture, or composition of matter, or any new and useful improvement thereof”
- **Not previously offered/sold or publicly described**
  - Enabling Disclosure
  - One Year Window in U.S. Only
- **Not obvious “to one of ordinary skill in the art”**
  - Prior art “teaches against”
  - Commercial success can show non-obviousness
- **First Inventor To File**

# Patents and New Ventures

- **Freedom to Make, License and Sell your Product**
- **Does Your Company Own the Technology?**
  - Assigned by Inventor to Company?
  - Licensed from University?
  - Did it go into the Public Domain?
    - Public Disclosure/On Sale Bars
- **What is your Strategy?**
  - Patenting vs. Disclosing to Prevent Others from Patenting

# Look before you Launch: Freedom to Operate

- **Does someone's IP bar you from market entry?**
  - Legal/economic implications
  - Investor appeal/requirement
  - Freedom to operate analysis:
    - Evaluation of the IP space “around” your technology
    - Need to license blocking IP from third parties?
- **Failure to look before you launch can be fatal**
  - You may not be able to secure an essential license
    - A direct competitor may hold blocking IP and may not be willing to negotiate a license deal
  - Investors typically have no interest in “buying a law suit”

Adapted from Presentation by Tobias Brambrink, Wolf Greenfield & Sacks P.C.

# Freedom to Operate

- **Prior Art – Find What Is Out There Already**

## See-the-Forest™ Patent Analytics

by ipvision

search topic or patent number (e.g. PN/6000000)

Search

User ID: ipvision

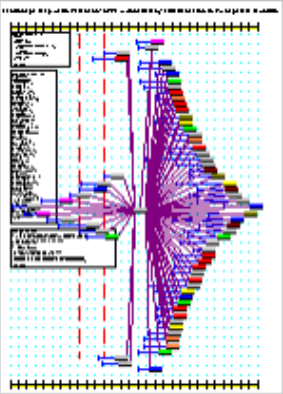
[Account Types](#)

[Search Help](#)

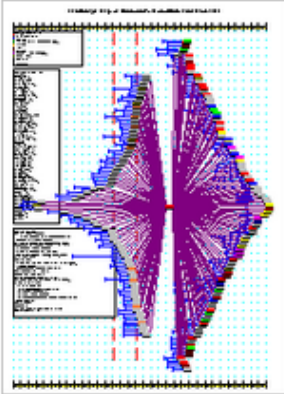
[More Search Options](#)

[see-the-forest.com](http://see-the-forest.com)

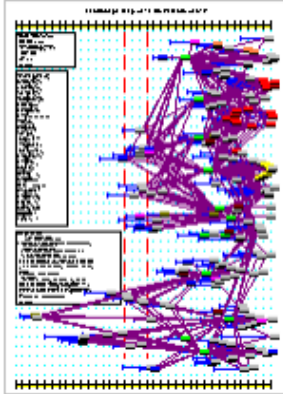
**Interesting Patents** [Archive](#)



**Computer Mouse Patent Litigation**



**This Patent Could Save Your Life - The Car Airbag Chip Patent**

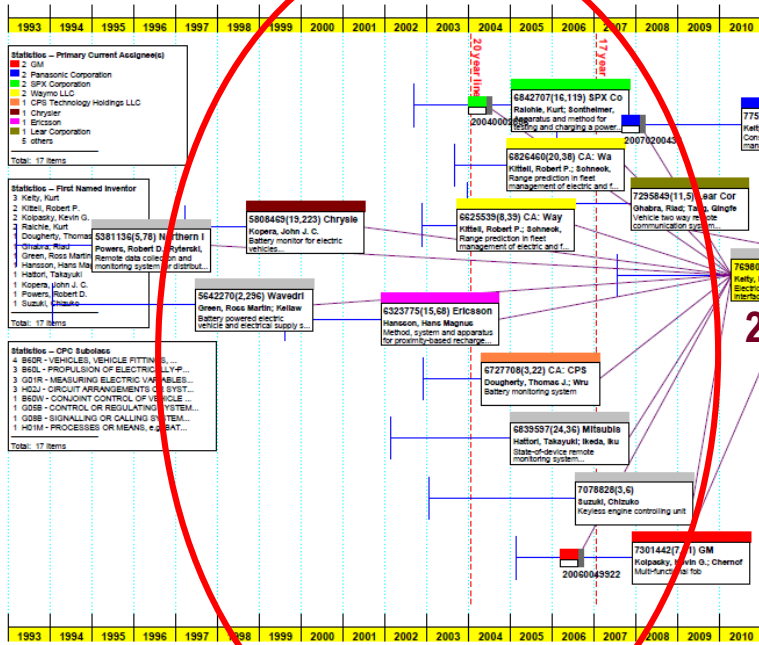


**The Blackberry Killer Patents**

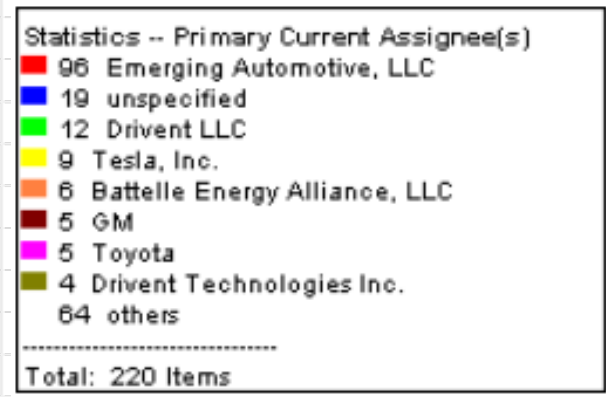
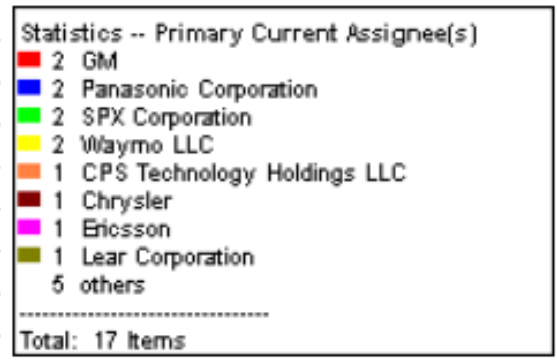
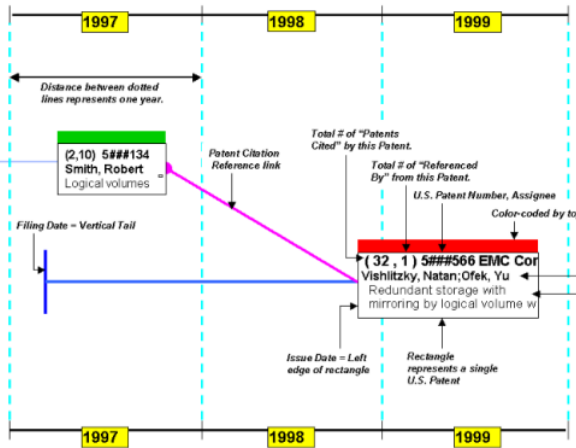
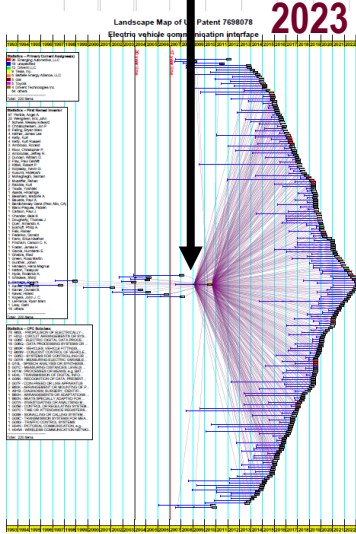


# PRIOR ART PATENTS

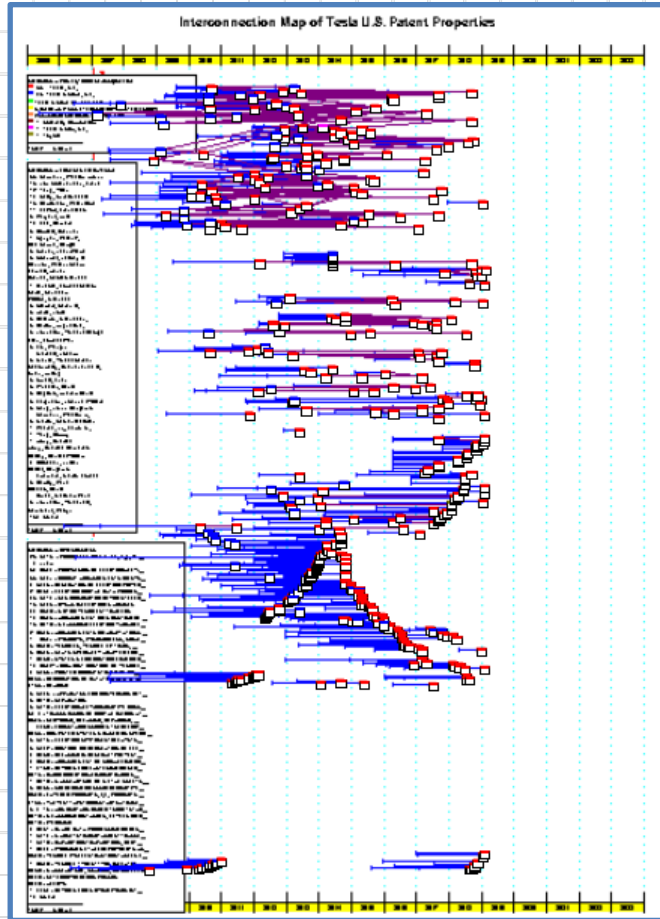
Interconnection Map of 15 Patent Items from sublist



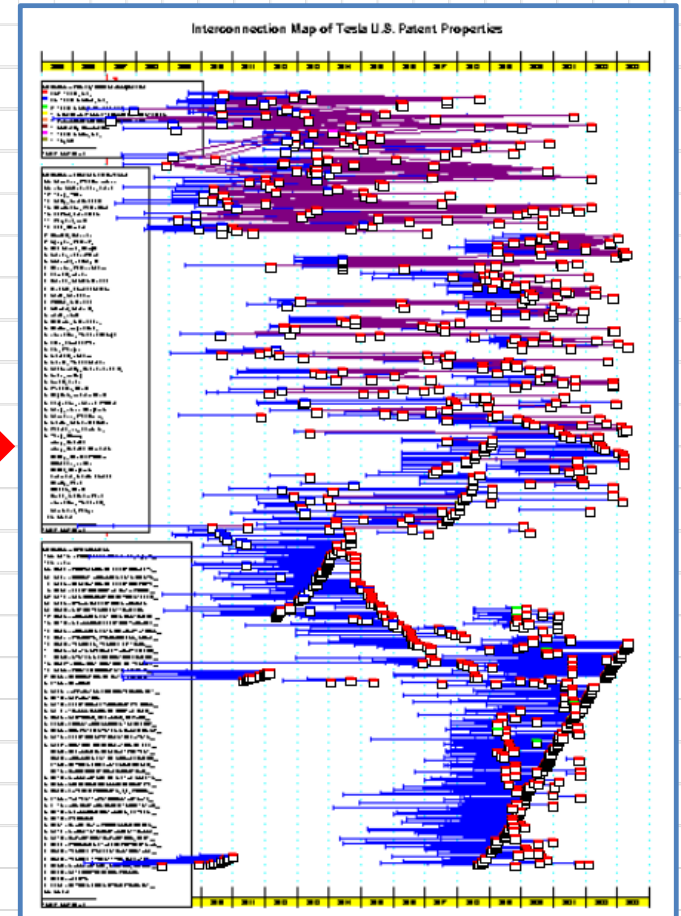
# TESLA PATENT



# Tesla U.S. Patent Portfolio



← 2018      2023      →



# Obtaining a Patent

- **The Application Process breaks down into four main projects**
  - **Determining What to Patent**
  - **Determining When to File**
  - **Preparing one or more Patent Applications**
  - **Prosecuting the Applications**

# What to Patent

- **Determining What to Patent**
  - **Probably the most important step**
    - Do NOT ask “What can I get a patent on?”
    - Ask instead “What do I want a patent on?”
      - What is of commercial value to my company?
      - How would my competitors use my technology?
  - **Compare against the prior art**

# When to File?

- **Determining When to File**
  - **Before you lose U.S. or Foreign rights**
    - Before a public disclosure
    - Before an “on sale” bar
  - **“First Inventor To File” Wins under AIA**  
(America Invents Act of 2011)
    - Formerly “First to Invent”
  - **In time to have a patent to protect your product or service**

# Provisional Patent Applications

- Requires a meaningful description of the invention
  - **Claims NOT** required
- Establishes **Filing Date Priority**
- “Protects invention” for one year – then file a utility application
- **Fast and Cheap** ~\$120 for small entity, \$60 micro (Jan 2023)
- Nothing happens at the PTO
- **BUT:** What you fail to describe will not receive the filing date priority

# What Is In A Patent?

- **A Patent Application is like a term paper – a set of figures and accompanying text**
  - **Field of the Invention**
  - **Background of the Invention**
    - Describe the “prior art” – what is out there
    - List advantages vs. Existing - What is broken that you fix?
  - **Summary of the Invention**
  - **Detailed Description**
    - Give examples of use
    - **Best Mode:** What is the best way to implement your invention. This is the bargain: you get a limited time monopoly if you educate the world
  - **Claims**
    - What exactly is your invention

# Costs

- **U.S. Utility Patent Applications**

- \$5,000 to \$15,000 for preparing the application
- U.S. Filing fee is about \$320/ \$128/ \$64
- Prosecution \$5,000 to \$15,000+ (you can't control Examiner)

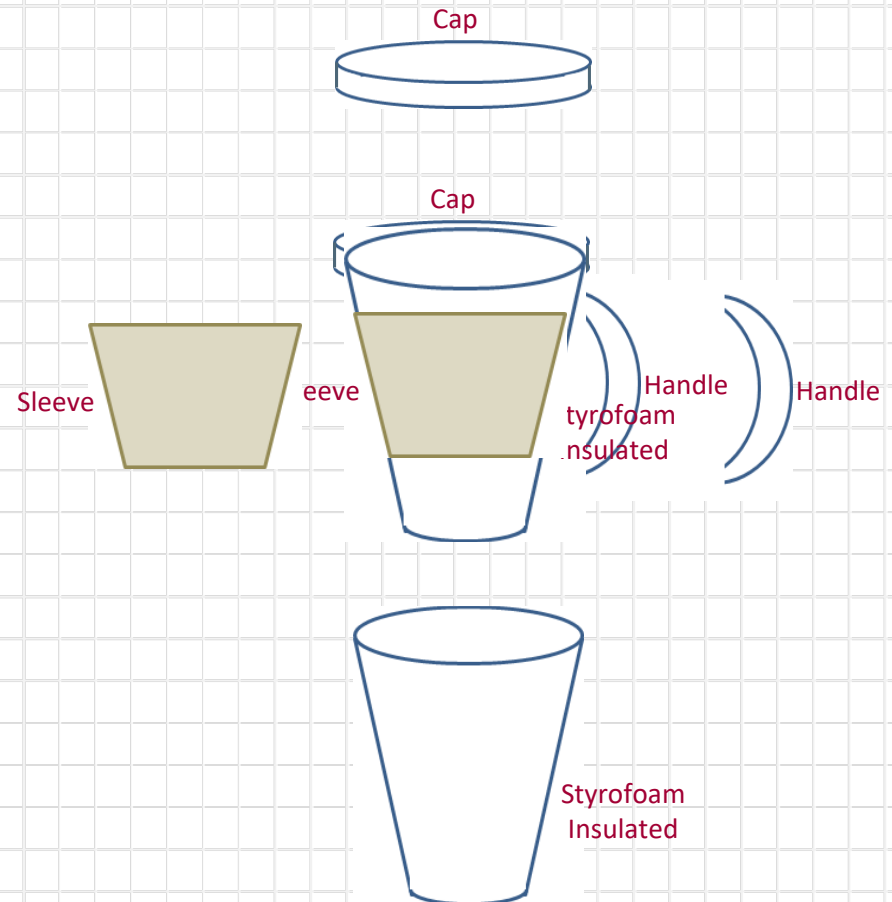
- **Foreign Patent Applications**

- PCT filing fee is about \$2,500 to \$4,000
- PCT demand is about \$1,000 to \$2,500
- European Filing fee is about \$6,000 to \$8,000
- Japanese Filing/Trans. fee is about \$7,000 to \$10,000
- National Fees – it gets expensive. Government Accounting Office study: For a “small company” = \$300k to \$500k in 10 countries over the life of the patent

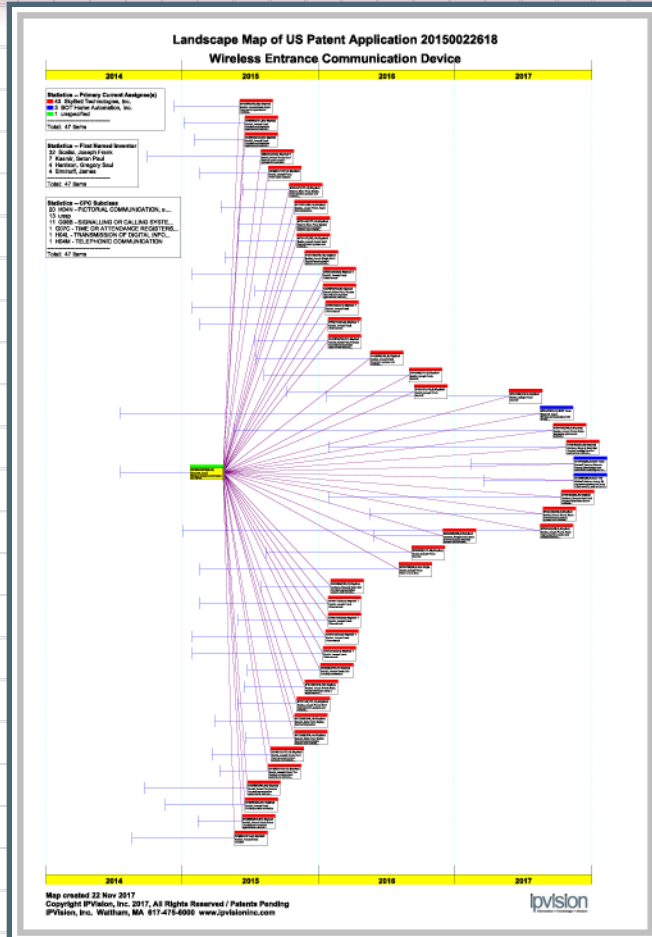


# Disclosure as a Strategy

- Avoid being “**Picket Fenced**”
  - Picket Fence is a group of patents surrounding a patent with the purpose of “blocking” commercial implementation
- Example Patent Map on Next Slide



# IPVision Landscape Map Picket Fence?



20150022618(0,46)  
Siminoff, James  
Wireless Entrance  
Communication Device

- This is the main patent application from **Ring**
- The Red Top boxes are patents from **SkyBell** surrounding Ring
- *Click Map Image to view Live Map*

# Evolving Patent Strategy - Tesla

- “Tesla felt compelled to create patents out of concern that the big car companies would copy our technology and then use their massive manufacturing, sales and marketing power to overwhelm. We couldn’t have been more wrong.....Tesla Motors was created to accelerate the advent of sustainable transport. If we clear a path to the creation of compelling electric vehicles, but then lay intellectual property landmines behind us to inhibit others, we are acting in a manner contrary to that goal. **Tesla will not initiate patent lawsuits against anyone who, in good faith, wants to use our technology.**”
- [Tesla Blog – June 12, 2014](#)
- **Patenting to Enable a Market.** Analogy to Henry Ford.
  - For Non Profits – Patent to Control Use of Your Invention

# Goal-Oriented IP Strategy

## Evaluate Your Needs

- **Core technology**
- **Product**
  - Risk of reverse engineering
  - Market exposure time/life span
  - Profitability over time
- **Business model**
  - Manufacture and sell
  - License/partner
- **Non-IP bars to market entry**
  - Regulatory
  - Economic
- **Exit strategy**

Adapted from Presentation by Tobias Brambrink, Wolf Greenfield & Sacks P.C.

# Practical Advice - Checklist

- **Employees** - Invention Disclosure and Assignment Agreements
- **Consultants** – Consultant Agreement specifying “Work for Hire” and Ownership by You
- **NDA (Non-Disclosure Agreements)** with Third Parties where appropriate
- **Avoid Infringement**
  - Freedom to Operate
  - Understand Patent Landscape
- **Preserve Patent Rights**
  - Provisional Patent Applications (PPA)
  - Timely File Patent Applications
    - First Inventor to File
    - File Before Disclosing or Offering for Sale
  - Avoid Being “Picket Fenced” – Consider Disclosing Inventions

# Streamline Attorney Interactions

- You are purchasing legal expertise, typically by the hour
- A disciplined and focused approach will save you time and money and maximize the quality of your IP
  - Understand your business goals, and what role you want IP to play
  - Plan ahead and keep your attorney informed of upcoming disclosures
  - Provide invention disclosures to your attorney well before publication and in a format that is easy to understand and convert into an application
  - Have a clear agreement on fees/budget for a given project
  - Acquire a basic understanding of IP concepts to manage attorney interactions efficiently
- Leverage your technical expertise
  - Identify the most relevant players and references in your field
  - Explain the difference(s) between the prior art and your technology
- Read Joe Hadzima's "[Ten Commandments of How to Work Effectively with Lawyers](#)"

# University Licensing Background

- **Sponsored Research: Who Pays/ Who Owns?**
- **Bayh-Dole Act of 1980 (“BDA”)**
  - Prior to the enactment of Bayh-Dole, the U.S. government had accumulated 30,000 patents.
  - Only licensed non exclusively
  - Few patents were commercialized.
    - Only approximately 5% of these patents were commercially licensed.
- **BDA permitted Universities to Retain Ownership of IP**
  - Permitted universities to license exclusively
  - Dramatically accelerated their commercialization

[See Wikipedia](#)

# Bayh-Dole Act Requires Universities to:

- Retain ownership of innovations created under government funding
- File patents on inventions arising from government funding
- Give licensing preference to **small businesses**
- Provide government with royalty-free non-exclusive license to use, make, or have made on behalf of federal government (limited to government use)
- Develop programs to commercialize these patents to benefit society
- Share royalties with the inventors

[Source: AUTM](#)

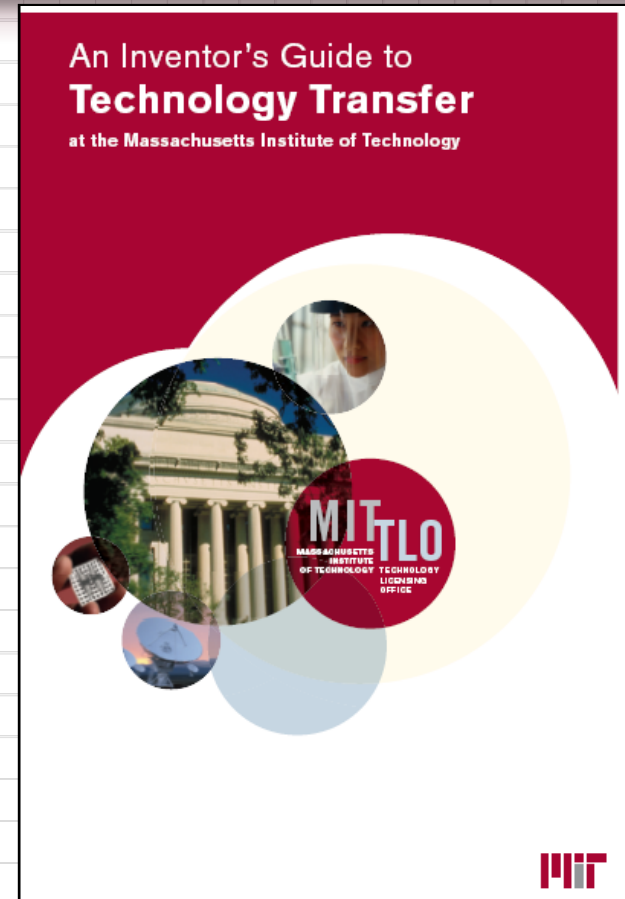


# Mission of MIT Technology Licensing Office (TLO)

- **Facilitate the transfer to industry of technology from MIT, Lincoln Laboratory, and Whitehead Institute, and thereby to benefit the public good through the development and subsequent sale of commercial products.**
- **Secondary goal is to generate unrestricted funds to motivate inventors and to support research and education at MIT**
- **[tlo.mit.edu](https://tlo.mit.edu)**

# MIT IP Ownership Policy

- **MIT owns the patent or copyright if:**
  - significant use was made of MIT facilities or
  - MIT administered funds were used
  - Textbooks are an exception
- **Never assigns ownership to a licensee or research sponsor**
- **Guarantees sponsors first rights to inventions made using their funds**



Source: TLO and Stephen Brown

# MIT IP Ownership Policy

- **MIT can waive invention to inventor if**
  - No sponsor's rights and
  - No significant use of MIT facilities and
  - No use of MIT administered funds and
  - No plans to use MIT facilities to reduce to practice

*Slide Credit: Stephen Brown*

# Voluntary Prosecution of non-MIT owned Inventions

- Any MIT employee or student may ask to assign his or her personally owned invention to MIT.
- If the TLO accepts the invention, it will be handled in the same manner as other MIT inventions, with the usual royalty-sharing arrangements.

[Source: MIT TLO](#)

# Typical Options to Startups

- **Option to Obtain a License**
- **Generally 6 months to 1 year**
- **Assumption of ongoing patent costs**
- **Modest up front signing fee \$1K to \$10K**
- **Exclusive or Non-exclusive**
- **Protects right to take a license**
- **Allows for time to evaluate technology and markets**

*Slide Credit: Stephen Brown*

# Typical License Financial Terms

## Components

- Issue fees
- License Maintenance fees
- Diligence
- Royalty as % of Sales
- Patent costs
- Research sponsorship

## No Equity

- \$50K to \$150K
- ~50% of expected RR
- Can't leave on shelf
- 3% to 5%
- \$25K to \$200K
- Not required

## With Equity

- \$5K to \$50K
- ~50% of expected RR
- Can't leave on shelf
- 2% to 4%
- \$25K to \$200K
- Not required
- Equity on Next Slide

*Slide Credit: Stephen Brown*

# Typical Startup Equity Terms

- **University Gets: Single digit % of equity**
- **% maintained thru \$5M to \$10M raised**
- **Proportional anti-dilution thereafter**
- **Future participation rights**

*Slide Credit: Stephen Brown*

# Typical Royalties for University Patents

<b>Software</b>	<b>5 -15%</b>
<b>Equipment/Medical Devices</b>	<b>3 - 5%</b>
<b>Materials</b>	<b>1 - 4%</b>
<b>Semiconductors (Chip Design)</b>	<b>1 - 2%</b>
<b>Materials (Processes)</b>	<b>.02 - 2%</b>
<b>Materials (Commodities)</b>	<b>.01 - 1%</b>
<b>Pharmaceutical at clinical testing stage</b>	<b>12 - 20%</b>
<b>Pharmaceuticals composition of matter</b>	<b>8 - 10%</b>
<b>Diagnostics new entity</b>	<b>4 - 5%</b>
<b>new method for old entity</b>	<b>2 - 4%</b>
<b>Biotechnology exclusive process</b>	<b>1 - 2%</b>
<b>non exclusive process</b>	<b>.025-1.5%</b>

Slide Credit: Stephen Brown  
Circa 2005



# MIT Royalty Distribution Policy

- **Deduct 15% from gross income for TLO operating expenses**
- **Deduct out-of-pocket, usually patent costs, expenses**
- **Distribute one-third of what's left equally among inventors**
- **Inventors can request unequal distribution**
- **Adjust remainder based on actual TLO operating expenses**
- **Subtract out-of-pocket expenses for unmarketable patents**
- **(write off bad inventory)**
- **One-half remainder to Departments**
- **The other half to MIT General Fund**

*Slide Credit: Stephen Brown*

# Time Line

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING	LATER FINANCINGS	
INTELLECTUAL PROPERTY	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents	Agreements -Invention Agreements -Non Disclosure (NDAs)	IP Strategy -Patent? -Disclose	Joint Ventures	Appearance to Acquirer?
LEGAL ENTITY	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings		

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING
LEGAL ENTITY	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings

# Legal Form for the Venture

- If you do nothing and there are more than 1 of you then you most likely are a **General Partnership**:
  - No written agreement needed
  - Joint and Several unlimited personal liability
  - Ownership based on \$ invested
  - **No outside investor wants this**
- In most cases, especially where outside financing will be needed, the entity of choice is a corporation – often a **Delaware corporation**
- **Why you should incorporate sooner than later:**
  - Avoid personal liability                      - Avoid “partner” liability
  - Minimize Personal Taxes – Section 83 – Procrastination Issues

# Legal Form for the Venture

- **Observing corporate formalities**
  - sign in the corporate name
  - maintain the corporate minutes, stock records
  - the challenge of picking a company name – DiVA example
- **Making the “S” election – Subchapter S Corporation**
  - “pass through” treatment for tax purposes
  - Qualification:  $\leq 100$  shareholders, One Class of Stock
  - some stockholders, foreign nationals, corporations, most venture capital firms will disqualify the “S”

# Subchapter S Taxation

- But most startups have **LOSSES** – investing in product or service development. Why Sub S?
- Because of the **EXIT** – saving 13+% on an acquisition

## Comparison of Subchapter C and Subchapter S Taxation

(Federal only 2020)

		<b>C</b>	<b>S</b>
		<u>Corporation</u>	<u>Corporation</u>
Net Profit Before Taxes		\$100,000	\$100,000
Corporate Tax Rate	21%	<b>(\$21,000)</b>	
		<u>\$79,000</u>	<u>\$100,000</u>
Max Individual Tax Rate	37%	<b>(\$29,230)</b>	<b>(\$37,000)</b>
Net Cash To Owners		<u>\$49,770</u>	<u>\$63,000</u>
Effective Tax Rate:		50%	37%

# Beware: Section 83 of the Internal Revenue Code

- **Rule:**

- If you receive “property in connection with providing services”
- You have Ordinary Income (taxed up to 37%) equal to:

**Fair Market Value of Property**

minus **What You Paid**

- **Example:**

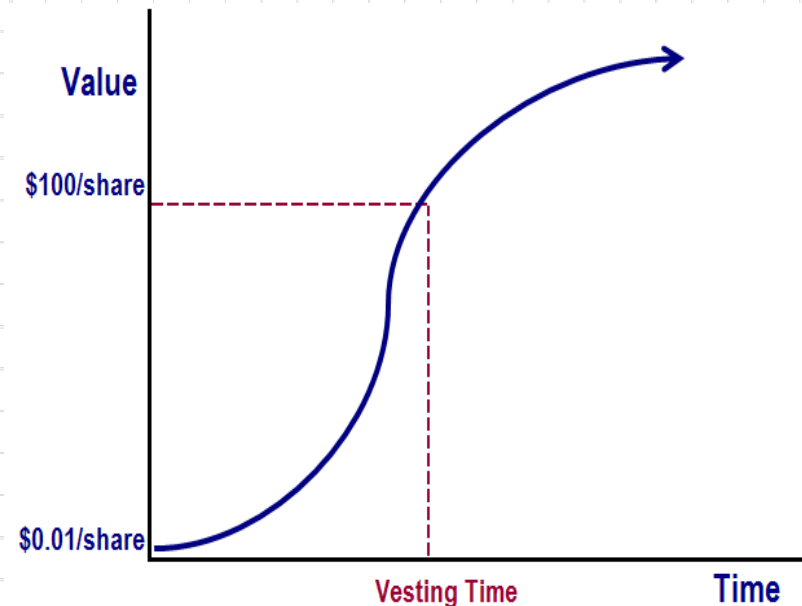
- I like your idea, I will give you \$1m for 50%, let's set up the company:

Fair Mkt Value = \$500,000  
You Paid = 0  
Ordinary Income = **\$500,000**  
Tax @ 40% = \$200,000

Fair Mkt Value = \$1,000,000  
You Paid = 0  
Ordinary Income = **\$1,000,000**  
Tax @ 40% = \$400,000

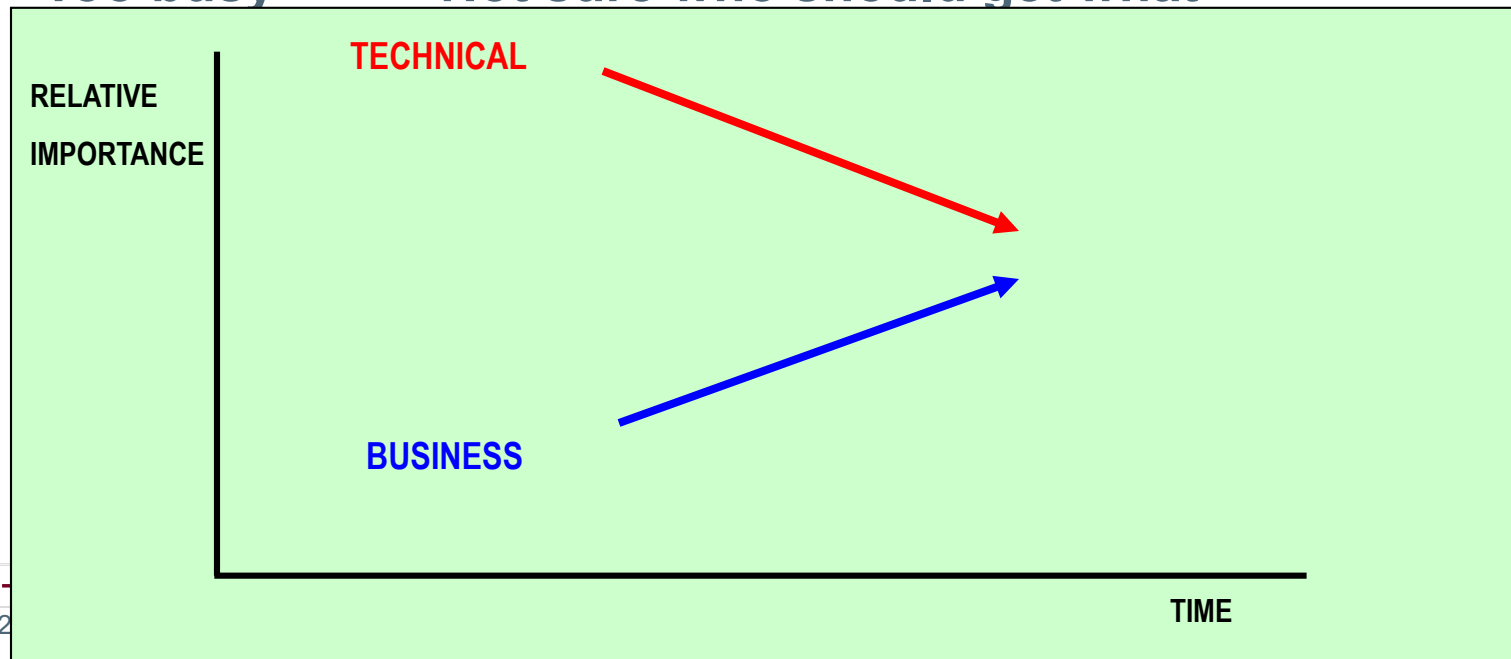
# When Do You Measure §83 Income?

- Typically Stock is “vested” over time, meaning that you may lose the stock if you leave. This is called a “risk of forfeiture”.
- Under §83, you measure the amount of income when the shares vest:
- 83(b) election
  - Measure Now
  - File within 30 days



# How to Avoid the §83 Trap

- Separate the Time When Stock is Issued to You from the Investment by Others – i.e. Incorporate earlier, ISSUE Stock & Make 83(b) Election
- **Why does Stock not get issued in time?**
  - Too busy
  - Not sure who should get what





# Time Line

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING	LATER FINANCINGS
INTELLECTUAL PROPERTY	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents	Agreements -Invention Agreements -Non Disclosure (NDAs)	IP Strategy -Patent? -Disclose	Joint Ventures Appearance to Acquirer?
LEGAL ENTITY	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings	

	IDEA STAGE	PRE-OUTSIDE FINANCING
PEOPLE	FOUNDERS Founders Memo -Roles -Expectation	Dividing Equity -Amount -Vesting

# Sort out the Relationship Among the Founders Up Front

- **Stockholders in a closely held corporation owe one another a fiduciary duty**
- **Who sits on the Board of Directors?**
- **Who holds what corporate titles (e.g., President, Vice President, Treasurer, Secretary)?**
- **Who holds what functional titles (CEO, COO, CTO, etc.)?**
- **Restrictions on Stock Transfers**
  - Rights of First Refusal
  - Preserve “S” treatment
  - Tag-Along rights
  - Carve Out for Family Transfers
- **Intramural Disputes**
- **See the [“Founders’ Memo”](#) on class website**

# Founder Equity Splits

- **Culture/Negotiated – Kenan Systems**
- **Value of past contributions**
- **Value of future contributions**
  - **Over next 12 months – When Do You Join?**
  - **Over next 4 years**
- **Sacrifice & Commitment**
- **Ownership of IP**
- **Individual’s external or “Market value”**
- **Internal Equity – Assume that everyone finds out**

# Philosophy on Team Building

- **Work To Be Completed >> Work Completed**
- **Compensate for both Risk and Sacrifice**
- **Reward for getting to the End Zone**
- **Maintain Internal Equity**
- **EVERYONE should Vest – Typically 4 years**

**BUT - every situation is different and rules are made to be broken**

From Charlie Tillett slides

# Employees - Equity

- **Company's stage**
  - **Funding**
  - **Revenue**
  - **Liquidity**
- **Employee's value to company**
- **Employee's market value**
- **Internal equity**

# Who gets Pie and How Big are the Slices?

- **What fraction of the equity goes into equity compensation pool?**
  - Initial Pool for 2 to 3 years; tie to Headcount Plan
  - First Round Venture Financing – 12% to 18% pool – fully diluted
- **Who is eligible?**
  - Key employees
  - Middle and rank-and-file employees
  - Directors
  - Consultants
- **Determining award size -- compensation experts and surveys**

YouTube: [Using Stock and Options as Compensation](#)

# Employee Specifics

(Charlie Tillett's Slide)

## Ownership % after 2 rounds of financing

<b>CEO</b>	<b>5%</b>
<b>VP</b>	<b>1% to 2 ½ %</b>
<b>Sr Manager</b>	<b>0.25% (1/4 of 1%)</b>
<b>Sr Ind Contributor</b>	<b>0.1% (1/10 of 1%)</b>

- **Founding management might get 2x to 3x**
- **Founding employees might get 5x to 10x**

**YOU CAN ALWAYS GRANT MORE LATER**

# Equity Distribution Example

## (From Charlie Tillett's Slides)

Name	Title	#	Initial Shares	%	After Option Pool Shares	%	Post Angel Shares	%	Post VC 1 Shares	%	Post VC 2 Shares	%	
<b>Founders</b>													
Jack	CEO		2,000,000	50.0%	2,000,000	32.3%	2,000,000	29.0%	2,000,000	14.5%	2,000,000	7.3%	
Susan	CTO		1,000,000	25.0%	1,000,000	16.1%	1,000,000	14.5%	1,000,000	7.3%	1,000,000	3.6%	
Anil	VP Sales		1,000,000	25.0%	1,000,000	16.1%	1,000,000	14.5%	1,000,000	7.3%	1,000,000	3.6%	
<b>Total</b>			<b>4,000,000</b>	<b>100.0%</b>	<b>4,000,000</b>	<b>64.5%</b>	<b>4,000,000</b>	<b>58.1%</b>	<b>4,000,000</b>	<b>29.0%</b>	<b>4,000,000</b>	<b>14.5%</b>	
<b>Key Early Employees</b>													
Jack	VP R&D				300,000	4.8%	300,000	4.4%	300,000	2.2%	300,000	1.1%	
Julie	Manager 1				100,000	1.6%	100,000	1.5%	100,000	0.7%	100,000	0.4%	
Sam	Manager 2				75,000	1.2%	75,000	1.1%	75,000	0.5%	75,000	0.3%	
<b>Total</b>			<b>-</b>	<b>0.0%</b>	<b>475,000</b>	<b>7.7%</b>	<b>475,000</b>	<b>6.9%</b>	<b>475,000</b>	<b>3.4%</b>	<b>475,000</b>	<b>1.7%</b>	
<b>Advisors</b>													
		<b>Per Person #</b>										<b>PP</b>	
Board Members	35,000	2			70,000	1.1%	70,000	1.0%	70,000	0.5%	70,000	0.3%	0.13%
Advisory Board	15,000	3			45,000	0.7%	45,000	0.7%	45,000	0.3%	45,000	0.2%	0.05%
<b>Total</b>			<b>-</b>	<b>0.0%</b>	<b>115,000</b>	<b>1.9%</b>	<b>115,000</b>	<b>1.7%</b>	<b>115,000</b>	<b>0.8%</b>	<b>115,000</b>	<b>0.4%</b>	
<b>Option Plan</b>													
		<b>Per Person #</b>										<b>PP</b>	
Manager	50,000	10			500,000	8.1%	500,000	7.3%	500,000	3.6%	500,000	1.8%	0.18%
Sr. Eng	25,000	20			500,000	8.1%	500,000	7.3%	500,000	3.6%	500,000	1.8%	0.09%
Jr. Eng	15,000	40			600,000	9.7%	600,000	8.7%	600,000	4.4%	600,000	2.2%	0.05%
Admin	1,000	10			10,000	0.2%	10,000	0.1%	10,000	0.1%	10,000	0.0%	
<b>Total</b>		<b>80</b>	<b>-</b>	<b>0.0%</b>	<b>1,610,000</b>	<b>26.0%</b>	<b>1,610,000</b>	<b>23.4%</b>	<b>1,610,000</b>	<b>11.7%</b>	<b>1,610,000</b>	<b>5.8%</b>	
<b>Investors</b>													
Angels (\$500K at \$4.5MM)							688,889	10.0%	688,889	5.0%	688,889	2.5%	
VC Round (\$5MM at \$5MM)									6,888,889	50.0%	6,888,889	25.0%	
VC Round (\$15MM at \$15MM)											13,777,778	50.0%	
<b>Total</b>			<b>-</b>	<b>0.0%</b>	<b>-</b>	<b>0.0%</b>	<b>688,889</b>	<b>10.0%</b>	<b>7,577,778</b>	<b>55.0%</b>	<b>21,355,556</b>	<b>77.5%</b>	
<b>Grand Total</b>			<b>4,000,000</b>	<b>100%</b>	<b>6,200,000</b>	<b>100%</b>	<b>6,888,889</b>	<b>100%</b>	<b>13,777,778</b>	<b>100%</b>	<b>27,555,556</b>	<b>100%</b>	



# Common Forms of Equity Compensation

- **Restricted Stock**
- **Incentive Stock Options (ISOs) tax-qualified stock options**
- **Nonqualified Stock Options (NQOs)**

# Restricted Stock

- **Stock sold or granted outright (usually when value is low)**
- **Starts capital gains / SEC holding periods running**
- **Subject to vesting and buyback by Company**
- **If 83(b) election timely:**
  - **Modest or zero income at grant**
  - **No further income until stock sold, then capital gain**
  - **No employer tax deduction for increase in value**

# Incentive Stock Options (ISOs)

- Options complying with tax requirements
- Only for **employees** of corporation
- Exercise Price = FMV on date of grant [ IRS 409A Valuation Report ]
- Typically exercise vesting over time
- No tax on grant or vesting
- Possible alternative minimum tax on exercise
- Taxation upon stock sale--capital gain if holding period requirements met (>1yr from exercise and >2yrs grant date); no employer deduction

# Nonqualified Stock Options (NSOs)

- **Complete tax freedom in design, but there may be accounting issues**
  - Discounted options
  - Repricings
  - Performance vesting
- **No tax on grant or vesting**
- **Ordinary income (and employer deduction) upon exercise**

# Vesting: Conditions on Keeping what seems to have been Awarded to You

- **Time-based vesting**
  - 3, 4 or 5 years?
  - Monthly, quarterly, annual
- **Performance vesting**
  - Design issues
  - Accounting issues
- **Accelerated vesting on change in control? IPO?**

# Forfeiture and Expiration of Rights

- **How long after employment ends may vested options be exercised? (ISO rules generally limit to 90 days)**
- **Forfeiture if “bad boy” provisions violated**
- **Consequences of violation of noncompetition, nonsolicitation agreements**

# Buyback Issues

- **Can company repurchase vested equity for fair value?**
  - Always?
  - When employment ends?
  - If covenants violated?
  - Never?
- See **“Founders’ Memo”** for further discussion

# Time Line

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING	LATER FINANCINGS
<b>INTELLECTUAL PROPERTY</b>	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents	Agreements -Invention Agreements -Non Disclosure (NDAs)	IP Strategy -Patent? -Disclose	Joint Ventures Appearance to Acquirer?
<b>LEGAL ENTITY</b>	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings	
<b>PEOPLE</b> <i>FOUNDERS</i>	Founders Memo -Roles -Expectation	Dividing Equity -Amount -Vesting			
<i>EMPLOYEES</i>	Immigration	-Wage Law issues? -Payroll Services	Options/Stock -Build from Charlie's Model		
<i>OUTSIDE CONTRACTORS</i> <i>ADVISORS/BOARD MEMBERS</i>	Ownership Who and Expectations -Use of Name?	Tax Characterization Document			Independent Director(s)?

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING
<b>FINANCING</b>		Securities Laws	Friends and Family -Convertible Notes Customer Financing -Secure IP SBIR and Grants



# Sell Securities and Raise Capital in Accordance with Law

- Properly “paper” even friendly deals with friends, relatives - avoid misunderstandings
- Using the Venture Plan/Pitch Deck to “sell securities” presents problems beyond VC’s, corporate investors
- Under federal law all **OFFERS** of securities must be registered with the SEC - an expensive process - unless there is an exemption – e.g. **Private Placement**

# Sell Securities and Raise Capital in Accordance with Law

- **Private Placements**

- Use an experienced securities law attorney
- Avoid dealing with individual investors who are not “accredited” (\$200K/300K annual income or \$1m net worth) - max of 35 “unaccredited” investors
- Include “risk factors” in disclosure materials
- Provide a capitalization table
- SEC Rule 10b-5 - don’t make material misstatements of fact or omit to state material facts
- Legends/Control Numbering of Documents
- Regulation D: Form D Filing with SEC and States

# Sell Securities and Raise Capital in Accordance with Law (continued)

- **Private Placements (continued)**
  - Avoid public pronouncements (newspaper articles, web site offerings, etc.)
  - Blue Sky (state securities) laws differ from state to state
  - Non-compliance may trigger a rescission offer, a stop order, personal liability
- **DON'T OFFER TO SELL SECURITIES IN A BUSINESS PLAN OR PITCH DECK ! ... “We are offering 10% of the company for \$2m”**
- **Crowd Funding – Relatively New**
  - Relation to Later Rounds?

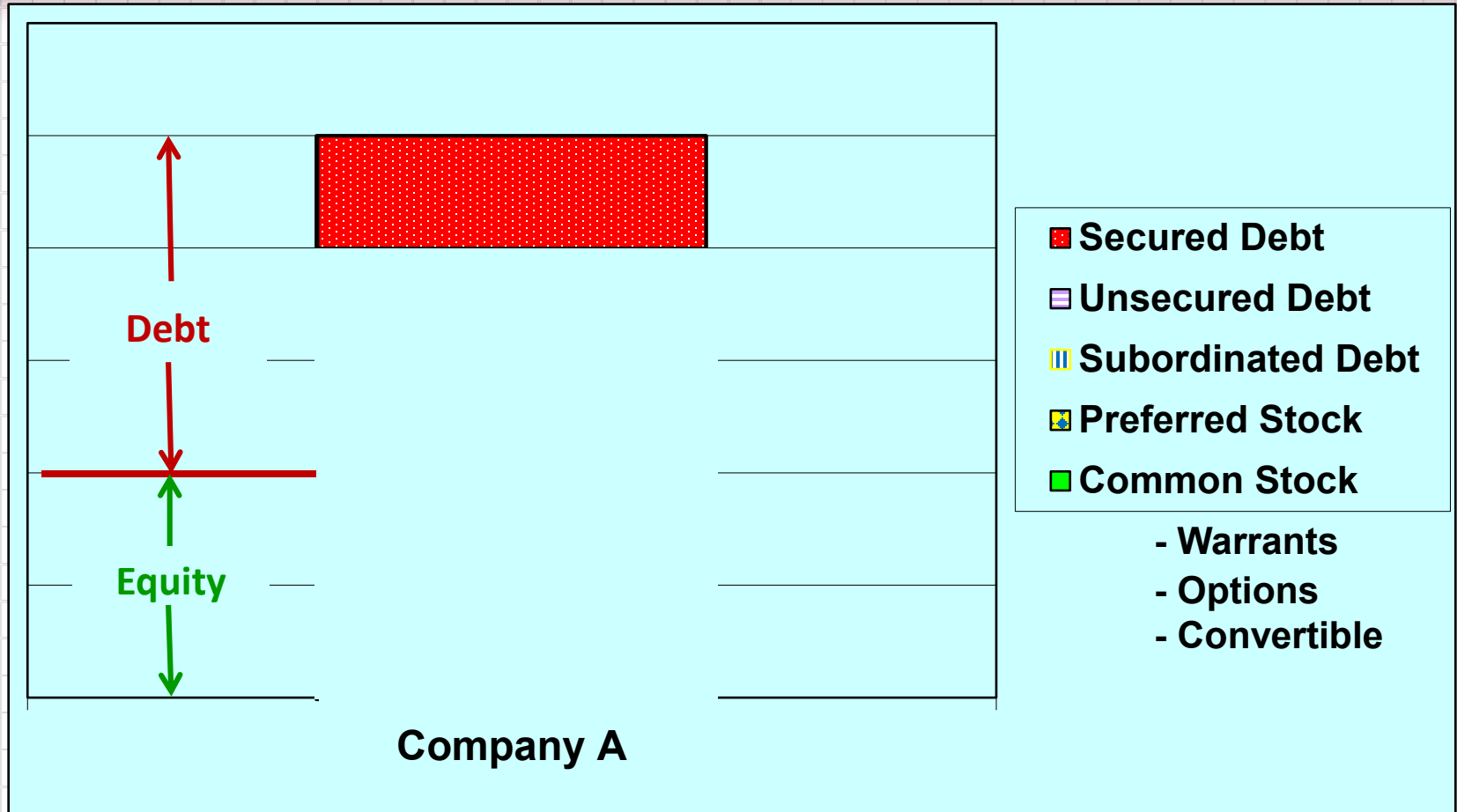
# Where Do Companies Get Money?



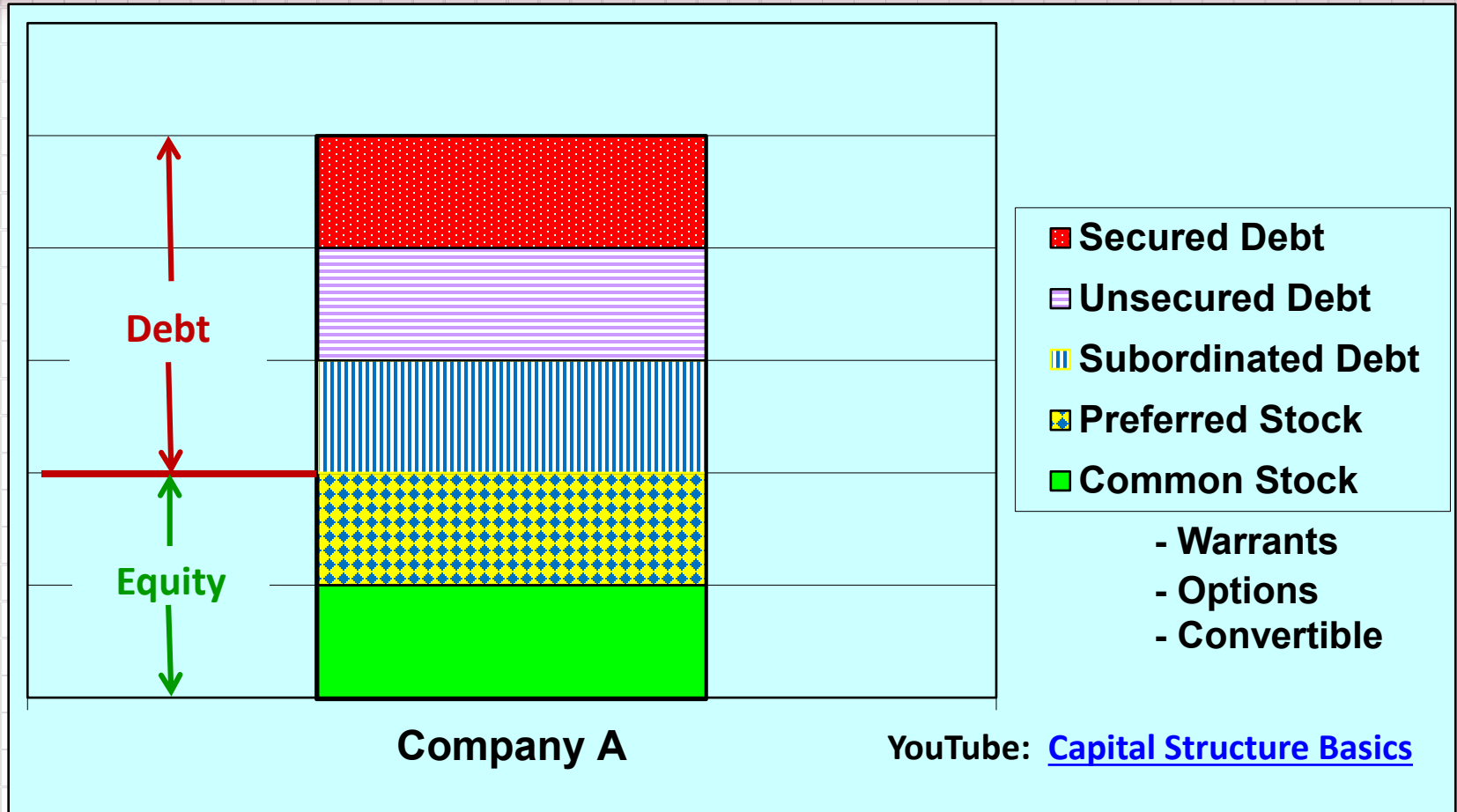
Brad Feld: [feld.com](http://feld.com)

<https://www.youtube.com/embed/U470xXKfDyE>

# Capital Structure Instruments



# Capital Structure Instruments



# The Company's Capital Structure

- **Debt - borrowed money**
  - private individuals
  - banks
  - other sources (e.g. vendors, customers)
  - stipulated rate of interest; no significant upside
- **Stock**
  - **Preferred Stock** (see “Venture Capital Deal Terms” in course materials – Financing Session)
    - usually given to VCs and investors
    - liquidation preference
    - convertible into common stock
    - anti-dilution formulas
    - board representation
    - veto / approval rights

# The Company's Capital Structure - *cont'd*

## – Common Stock

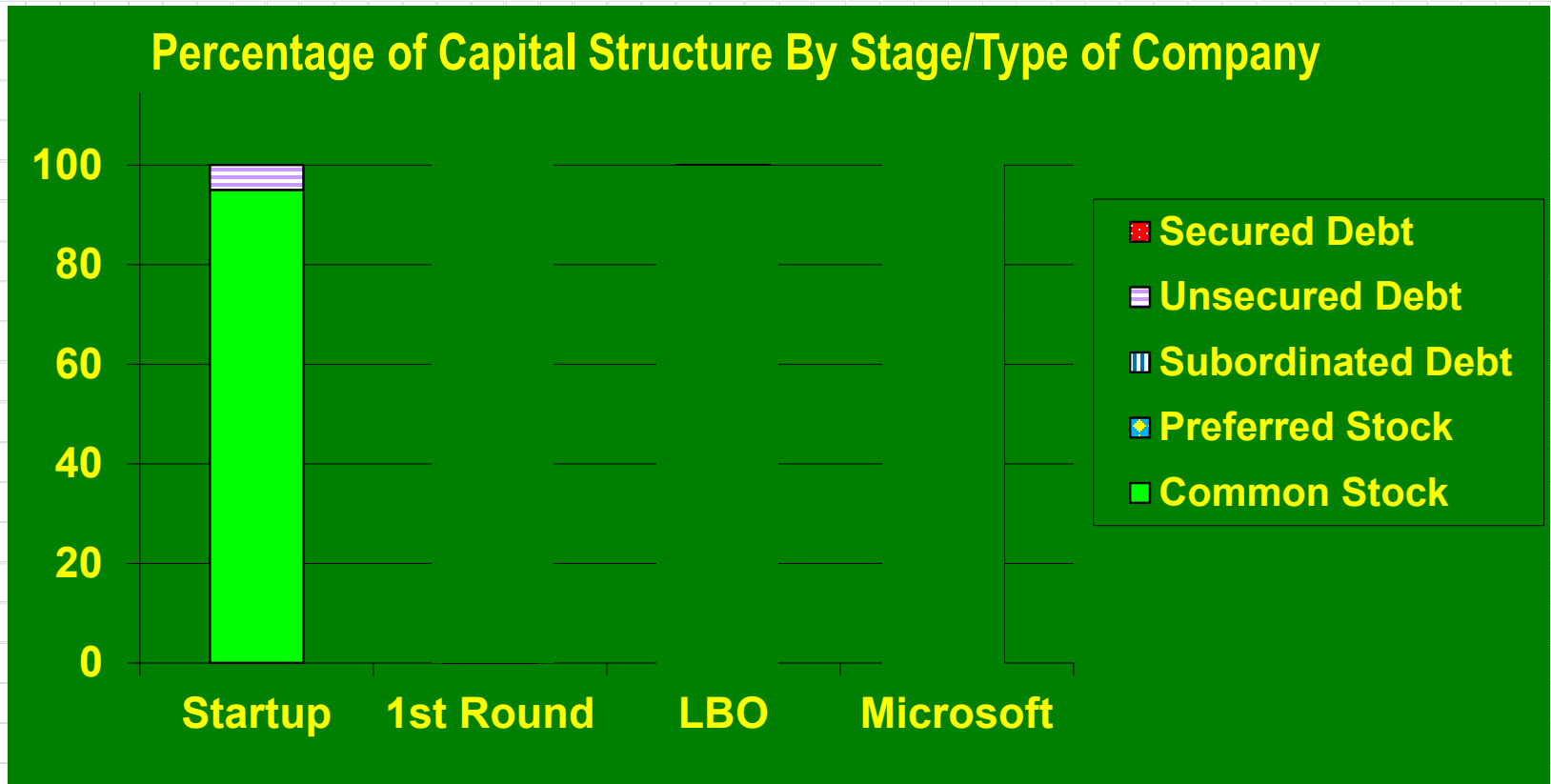
- “plain vanilla” stock
- usually given to founders / employees
- no liquidation preference / convertibility
- Residual Value after others get theirs

## – Options / Warrants

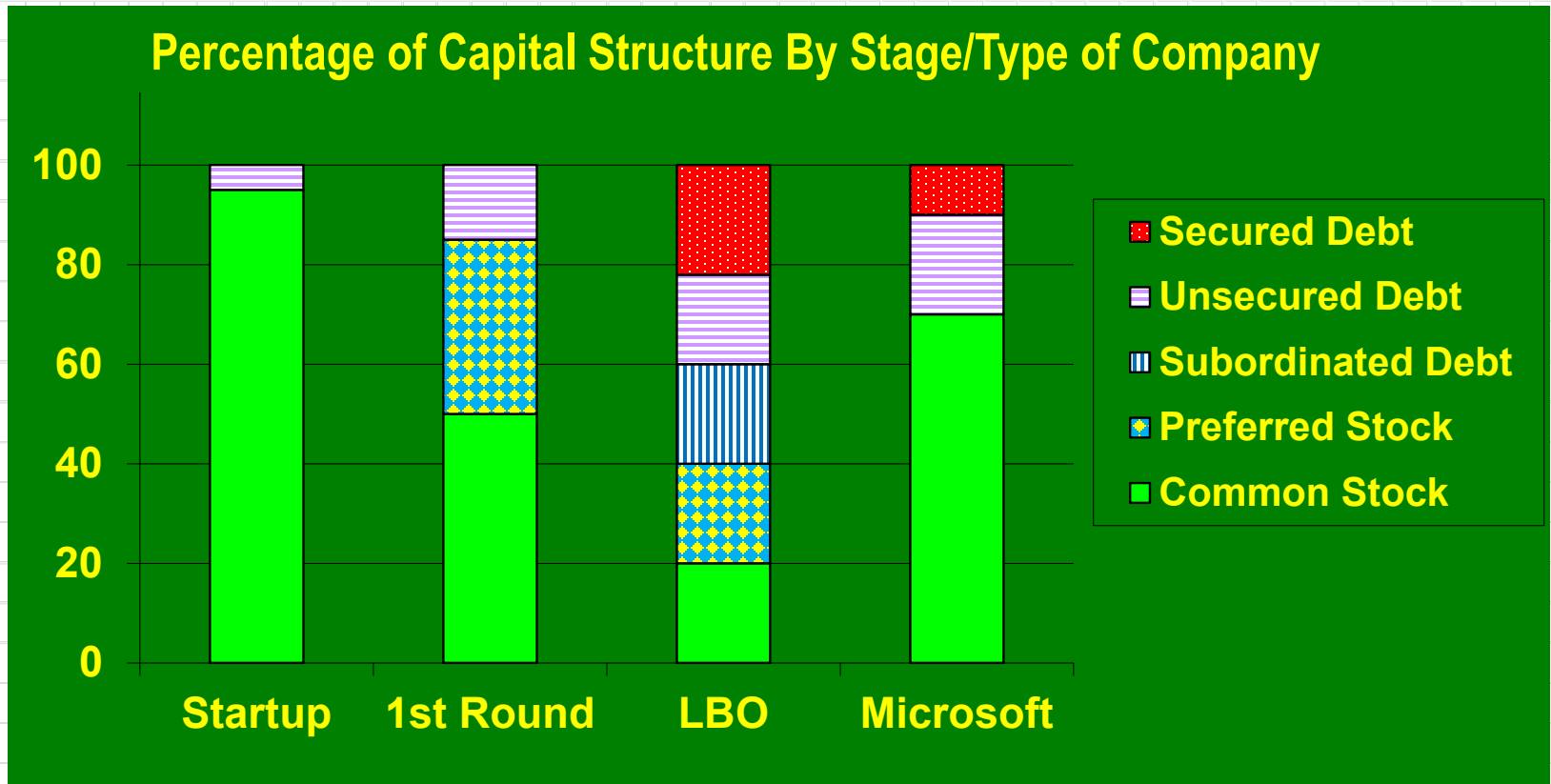
- Rights to buy shares at set times for stipulated price



# Capital Structure Instruments



# Capital Structure Instruments



# Convertible Note Financing

- **Traditionally – Bridging From One Round to Another**
- **More Recently, to Start:**
  - **Quickly**
  - **Inexpensively**
  - **Avoiding “Valuation Issues”**
    - **Cram Downs at Series A or B**
- **Pros and Cons – Good Discussion at:**
  - [www.startupcompanylawyer.com](http://www.startupcompanylawyer.com)
  - <http://www.startupcompanylawyer.com/category/convertible-note-bridge-financing/>

YouTube: [Investing in New Ventures](#)

# Convertible Note Financing

## CONVERTIBLE SECURITY FINANCING SUMMARY OF TERMS

<b>ISSUER:</b>	[Name] (the “ <b>Company</b> ”).
<b>TYPE OF SECURITY:</b>	Up to \$[Amount] worth of convertible securities (the “ <b>Convertible Securities</b> ”).
<b>TARGET CLOSING DATE:</b>	[Date].
<b>MINIMUM INVESTMENT:</b>	[\$25,000] per investor.
<b>QUALIFIED FINANCING:</b>	Preferred Stock financing of at least \$[1,000,000].
<b>CONVERSION PRICE:</b>	Lower of [80]% of the price per share paid by other purchasers in the Qualified Financing or a \$[4,000,000] valuation cap (obtained by dividing \$[4,000,000] by the Company’s fully-diluted capitalization) (the “ <b>Valuation Cap</b> ”).
<b>AUTOMATIC CONVERSION:</b>	In the event the Company consummates a Qualified Financing prior to a change of control, the amount invested by an Investor for the purchase of such Investor’s Convertible Securities (the “ <b>Investment Amount</b> ”) shall automatically convert into shares of the Company’s Preferred Stock sold in the Qualified Financing and Common Stock at the Conversion Price. The total number of shares of Preferred Stock and Common Stock that a holder of Convertible Securities shall be entitled upon conversion of such Convertible Securities shall be determined by dividing (i) the Investment Amount by (ii) the Conversion Price (the “ <b>Total Number of Shares</b> ”). The Total Number of Shares shall consist of (i) that number of Preferred Stock obtained by dividing (a) the Investment Amount by (b) the price per share paid by other purchasers in the Qualified Financing (the “ <b>Number of Preferred Stock</b> ”) and (ii) that number of Common

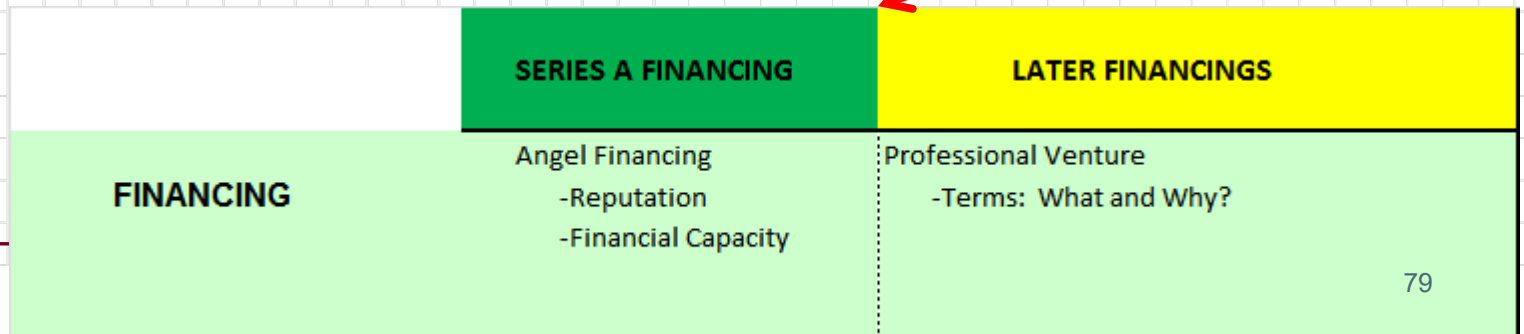
- **Cooley LLP**
  - <https://www.cooleygo.com/convertible-debt/>
- **Wilson Sonsini**
- **Goodwin Proctor**
  - <http://www.foundersworkbench.com/>

# SAFEs

- **Simple Agreement for Future Equity**
- Y-Combinator – 2013
- Unlike a convertible note, a SAFE is not a loan - more like a warrant.
- No interest paid and no maturity date
- Not subject to the regulations that debt may be in many jurisdictions.
- Valuation Caps and Discounts
- <https://www.cooleygo.com/glossary/safe/>

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<i>EMPLOYEES</i>	Immigration	-Wage Law issues? -Payroll Services	Options/Stock -Build from Charlie's Model		
<i>OUTSIDE CONTRACTORS</i> <i>ADVISORS/BOARD MEMBERS</i>	Ownership Who and Expectations -Use of Name?	Tax Characterization Document			Independent Director(s)?
<b>FINANCING</b>		Securities Laws	Friends and Family -Convertible Notes Customer Financing -Secure IP SBIR and Grants	Angel Financing -Reputation -Financial Capacity	Professional Venture -Terms: What and Why?



# A Preferred Return

- **Perception of the VC Investor:**
  - When the Investor Writes the Check he or she has done most **EVERYTHING** promised
  - The Entrepreneur Has Done **NOTHING YET**
- **Result:**
  - The VC wants its money to be paid back **BEFORE** the Entrepreneur gets his/her return.
- **Instrument: CONVERTIBLE PREFERRED STOCK**

# Major Deal Elements

- **A Preferred Return**
- **Protection of Valuation and Position re: Future Money**
- **Management of the Investment**
- **Exit Strategies**



# A Preferred Return: Dividends

**Dividends:** The Preferred Stock is entitled to an annual \$\_\_\_\_\_ per share dividend, payable when and if declared by the Board of Directors, but prior to any payment on Common Stock; dividends are not cumulative

**Dividends:**

- Paid to Preferred First
- Cumulative or Accruing

# A Preferred Return: Liquidation Preference

**Liquidation Preference:** The Series A Preferred will have a liquidation preference such that proceeds on a merger, sale or liquidation (including non-cumulative dividends) will first be paid to the Series A and will include a 10% per annum compounding guaranteed return calculated on the total amount invested.

- **“Straight” Liquidation Preference:** The Preferred receives its original investment amount plus accrued dividends (if any) before Common receives anything.
- **Participating (“Double Dip”) Preferred:** The Preferred first gets its liquidation preference and then shares any remaining proceeds with Common. Increasingly subject to a cap of 3X or 4X (including preference).



# Valuation and Participating Preferred

- **WHICH IS THE BETTER DEAL FOR THE FOUNDERS?**
- Case A: Founders sell **40%** of the Company for \$5m of Convertible Preferred Stock with a \$5m Liquidation preference but NO participating rights. (**\$7.5M pre-money valuation**)
- Case B: Founders sell **30%** of the Company for \$5m of **Participating Preferred Stock (\$10m pre-money)**

# Valuation and Participating Preferred

**Payout Schedule for Case A: 40% of the Company for \$5M of Non Participating Preferred**  
**Pre-Money Valuation: \$7,500,000**

Exit Valuation (\$M)	5	10	12.5	20	35	100
Investor Payout (\$M)	5.00	5.00	5.00	8.00	14.00	40.00
Founders (\$M)	-	5.00	7.50	12.00	21.00	60.00

**Payout Schedule for Case B: 30% of the Company for \$5M of Participating Preferred**  
**Pre-Money Valuation: \$10,000,000**

Exit Valuation (\$M)	5	10	12.5	20	35	100
Investor Payout (\$M)	5.00	6.50	7.25	9.50	14.00	33.50
Founders (\$M)	-	3.50	5.25	10.50	21.00	66.50

If the Exit Valuation is  $\leq$  \$35M then **Case A** is better for the Founders

If Exit Valuation  $\leq$  \$35M then **Case A** is better for Founders

# A Preferred Return: Liquidation Events

- **Liquidation, dissolution, sale of assets**
  - money comes into corporation
  - money paid out to stockholders to redeem stock
- **“Deemed liquidation”- merger or other positive event**
  - consideration may be stock or cash
  - consideration may go directly to stockholders

# Major Deal Elements

- A Preferred Return
- **Protection of Valuation and Position re: Future Money**
- Management of the Investment
- Exit Strategies

# Protection of Valuation and Position re: Future Money

- **Antidilution Protection**
- **Approval Rights**



# Protection of Valuation: Conversion and Antidilution

## **Conversion:**

**A holder of the Series A Preferred shall have the right to convert the Series A Preferred at the option of the holder, at any time, into shares of Common Stock. The total number of Common Shares into which the Series A Preferred may be converted initially will be determined by dividing the Original Purchase Price by the “Conversion Price”. The initial Conversion Price shall be the Original Purchase Price.**

# Protection of Valuation: Conversion and Antidilution

- **Conversion Events: When Does Preferred Convert Into Common?**
  - Voluntary
  - Forced: often some % of Preferred can force conversion of all
  - Automatic--upon “Qualified IPO”
    - minimum total offering; minimum share price (usually 3 to 5 times initial purchase price)
- **Conversion Ratio--initially 1:1**
  - Adjustments--stock splits, etc; price antidilution
  - Exceptions--option pool, conversion of preferred, outstanding warrants, other existing conditions, other special exceptions

# Protection of Valuation: Conversion and Antidilution

## **Anti-Dilution:**

**Series A shall have weighted average anti-dilution, based on a weighted average formula to be agreed, for all securities purchased as part of this transaction (excluding shares, options and warrants issued for management incentive and small issues for strategic purposes of under 100,000 shares)**

# Protection of Valuation: Conversion and Antidilution

- **Antidilution Adjustment increases the number of shares received on conversion of Preferred**
- **What Triggers Antidilution Adjustment?**
  - Issuance or “deemed issuance” of Common at less than preferred issuance price
  - “Deemed issuance”--adjust upon issuance of derivative security; if common never issued, readjust later
    - options, warrants
    - convertible securities

# Protection of Valuation: Antidilution

- **Conversion Ratio:**
  - **Original Purchase Price/Conversion Price**
    - Initially  $OPP=CP$  so Conversion Ratio = 1 for 1
- **“Full ratchet”:** Conversion Price reset to equal price at which diluting security is sold
- **“Weighted average”:**  $CP_{new} = CP_{old} * R$ 
  - Where  $R = (N + M/CP_{old}) / (N+S)$ 
    - $N$  = old shares outstanding (fully diluted)
    - $S$  = new shares to be issued
    - $M$  = new money (\$)

# Antidilution

	Common	Rounds of Financing		
		Series A	Series B	Series C
<b>Pre-Money Valuation</b>		\$ 10,000,000	\$ 85,000,000	\$ 39,400,000
<b>Amount Invested</b>		\$ 7,000,000	\$ 13,500,000	\$ 5,000,000
<b>Stock Price for Round</b>		\$1.00	\$5.00	\$2.00
<b>Number of Shares Issued</b>	10,000,000	7,000,000	2,700,000	2,500,000
<b>Post-Money Valuation</b>		\$ 17,000,000	\$ 98,500,000	\$ 44,400,000
<b>Normal Dilution</b>				
Common	100%	58.82%	50.76%	45.05%
Series A		41.18%	35.53%	31.53%
Series B			13.71%	12.16%
Series C				11.26%
	-----	-----	-----	-----
	100.00%	100.00%	100.00%	100.00%

## Percentage Ownership After Series C Round

	Common	Series A	Series B	Series C
<b>Normal Dilution</b>	45.05%	31.53%	12.16%	11.26%
<b>Weighted Average</b>	44.65%	31.26%	12.93%	11.16%
<b>Full Ratchet</b>	38.10%	26.67%	25.71%	9.52%

# Major Deal Elements

- A Preferred Return
- Protection of Valuation and Position re: Future Money
- **Management of the Investment**
- **Exit Strategies**

# Management of Investment

- Many Venture Capital and Private Equity Funds include money raised from pension funds
- **Employee Retirement Income Security Act of 1974 (ERISA)**
  - Imposes Fiduciary Duties on managers of pension fund assets
  - Exemption for Venture Capital Operating Company
    - Must exercise “management rights” – i.e. contractual rights (running directly between the investor and the operating company) to “substantially participate in, or substantially influence the conduct of, the management” of an operating company.
    - Includes right to elect one or more directors



# Exit Strategies

- How does the VC investor get its money out?
- See [Beginners Guide to Venture Capital](#) in the course materials to see how funds operate
- Options for Exit:
  - Public Offering – Registration Rights
  - Trade Sale (Acquisition)
  - Redemption Rights (leverage for sale)

# Time Line

	IDEA STAGE	PRE-OUTSIDE FINANCING	INITIAL "OUTSIDE" FINANCING	SERIES A FINANCING	LATER FINANCINGS
<b>INTELLECTUAL PROPERTY</b>	Who Owns? -Employer -MIT -CoWorker -Ind. Contractor	How To Protect -Types of IP -Copyright -Trademarks -Tradesecrets -Patents	Agreements -Invention Agreements -Non Disclosure (NDAs)	IP Strategy -Patent? -Disclose	Joint Ventures Appearance to Acquirer?
<b>LEGAL ENTITY</b>	Choice of Entity -Basic Choices -Where?	When To Act? -Section 83 Trap	Make Sure Documented	Annual Filings	
<b>PEOPLE</b>	<i>FOUNDERS</i> Founders Memo -Roles -Expectation	Dividing Equity -Amount -Vesting			
<i>EMPLOYEES</i>	Immigration	-Wage Law issues? -Payroll Services	Options/Stock -Build from Charlie's Model		
<i>OUTSIDE CONTRACTORS</i>	Ownership	Tax Characterization			
<i>ADVISORS/BOARD MEMBERS</i>	Who and Expectations -Use of Name?	Document		Independent Director(s)?	
<b>FINANCING</b>		Securities Laws	Friends and Family -Convertible Notes Customer Financing -Secure IP SBIR and Grants	Angel Financing -Reputation -Financial Capacity	Professional Venture -Terms: What and Why?

See "[Venture Capital Terms](#)" on Resources Page at [nutsandbolts.mit.edu](https://nutsandbolts.mit.edu)

# Legal Issues

**THANK YOU**

**(Invoice to follow.....)**