



Ming Hsieh Institute  
Entrepreneurship Seminar Series  
for Ph.D. Students

Technology  
Commercialization

# Ron Miller

## Career:

- Founder and President, Ron Miller & Associates, LLC and Ron Miller Fiduciary Services, PC (business consulting & trust administration)
- Managing Director, BCC Capital Partners (mergers & acquisitions, capital raises)
- Financial Advisor, Merrill Lynch (wealth management)
- Founder and President, Digital Media Group of Los Angeles and Shockwave Consulting Group (technology consulting)
- Chief Operating Officer, accounting division, Mellon Financial Corporation (now BNYMellon): key member of turnaround team
- Chief Financial Officer, several companies
- Investment Banker and Private Equity Fund (Technology) Portfolio Manager, GMAC and BCC Capital Partners
- Management Consultant, SCA Consulting (Fortune 1000 strategy consulting)
- Portfolio Manager, Small Cap Aggressive Growth Fund; Trustee, High Net Worth & Institutional Trusts, Bank of America

## Education, Professional Accreditation & Affiliations:

- USC, Electrical Engineering and Business Administration (Finance)
- UCLA, Accounting (completed coursework and passed CPA exams)
- UC Irvine, Effective Board Leadership Program
- CSU Fullerton, Professional Fiduciary coursework
- Chartered Financial Analyst<sup>®</sup> and Certified Corporate Trust Specialist<sup>®</sup>
- FINRA license: Series 7 and 66 (Registered Representative, aka “stockbroker”); Series 79 (Investment Banker)
- Board Director, Bob Hope USO (Audit Chair, Investments Consultant, Fundraising member); enPlug (Board Advisor); various others
- Association for Corporate Growth, Los Angeles Venture Association, Turnaround Management Association, National Association of Corporate Directors, Financial Executives International (former Board member, Los Angeles chapter), Association for Strategic Planning

## Practical Experience:

- Took 3 start-up tech companies public on NASDAQ: Comarco, Consumer Portfolio Services, Industries International
- Sold or raised money for dozens of small early-stage and established companies

# “Miranda” Warnings

- **I am not an attorney or tax accountant. I am not providing legal or tax advice. Consult an attorney or tax advisor.**
- **Investments may lose value, are not FDIC-insured or bank-guaranteed, and may not generate expected results. ☹️ I am not providing investment advice.**
- The information herein is based on my skills, experiences and research. I believe the information to be accurate as of the date and time I recorded it. Any errors are my own.
- I am familiar with technology but am not a technologist. I can only fully evaluate your brilliant idea and help you realize your dreams after doing my homework (and being paid).
- I, like most people, stand on the shoulders of the giants that preceded me. I'd like to believe that most of the ideas shared herein are my own, but the reality is that, over the years, I've accumulated so much knowledge from so many smarter people that often I don't know where something originated. I've tried to cite the source whenever I knowingly included something from another, but if I have failed to cite a source, I apologize to the source and my audience. Note: I don't cite the sources for financial theory.

# Rules of Engagement

- Everyone in this room is far smarter than me. I know what I know (which would fill a few books) and have a good idea of what I don't (which would fill many, many libraries, virtual or otherwise). If I don't know, I'll tell you.
- I will have a Q&A at the end, but I like to take questions as we go, even if it's covered later, because it makes listening (and presenting) more interesting. Two hours is a long time to listen to a monologue.
- I will cover some basics that fall into the legal, accounting, tax, marketing and other areas of business. Other seminar speakers will cover their respective areas of expertise in greater detail.
- Get used to uncertainty (a challenge for engineers, I know). Many business decisions must be made without having all the critical information. Your objective should be to make a decision or take an action based on 80% of what you need, not wait indefinitely for 95%-100% of the information.
- This is a “crash course” and we're going to fly through the material. We can't possibly cover everything you may need to know in 2 hours. If you have questions after this session, let's take it offline.

# What We'll Cover

- Steps to commercialize a product
- Whether and how to build a company
- Funding sources and expectations
- Business 101: strategic planning, sales and marketing, finance and accounting
- Valuing a business
- Q&A

# What is Tech Commercialization?

“...the process of **transferring skills, knowledge, technologies, methods of manufacturing, samples of manufacturing and facilities** among governments or universities and other institutions to ensure that scientific and technological developments are ***accessible to a wider range of users who can then further develop and exploit the technology*** into new products, processes, applications, materials or services.”

Source: [http://en.wikipedia.org/wiki/Technology\\_transfer](http://en.wikipedia.org/wiki/Technology_transfer), downloaded 12 November 2014

# Note Well:

- It says “...[transfer] skills, knowledge, technologies...methods... samples...and facilities...”
- I disagree that you **have to** “transfer” it. You’re likely to retain more wealth if you can avoid transferring your IP. However, you will probably **want to** transfer it to scale up the potential wealth generation, as most people don’t have the resources needed to commercialize their ideas.
- It says “...[make] accessible to a wider range of users who can then further develop and exploit the technology...”
- Maybe the users “further develop and exploit”, and maybe they don’t. As I note above, some people have the resources to develop and exploit on their own. See Cornelius Vanderbilt, Rupert Murdoch, Alfred Mann, Patrick Soon-Shiong and Richard Branson.
- It doesn’t say “build and sell for a profit”!
- It doesn’t say “build a company”!

# Examples of Commercialization (aka the “Exit”)

- Sale of Intellectual Property (intangible) and/or assets (tangible) for “consideration” (money, usually): transfer ownership to another
- License IP for a royalty stream: retain ownership
- Exchange of IP or assets for other “assets”
- Private capital raise
- Public capital raise (aka “IPO”)
- Governmental capital raise (aka “grant”)
- Private gift or donation (e.g., family succession, charity)
- Public “gift” (e.g., VISTA, LINUX, hacker code)
- Planned obsolescence: the opposite of commercialization, but you may be paid



# Ten Steps to Commercialization

- Identify the problem (this is where you should start)
- Identify potential solutions
- Evaluate the competitive/collaborative landscape
- R&D (this is where many technologists start)
- Patent, copyright or trademark
- Identify potential customers and/or partners
- Negotiate the strategic “partnerships”
- License the technology to the strategic partners
- Market the solution (not the product)
- Generate and collect revenue (hopefully for a reasonable profit)

# Step One: Identify The Problem

- Every successful business – product or service – is based on solving someone’s problem(s)
- Bases of problems: time (too fast, too slow); volatility (magnitude and direction: too much, too little); complexity (too much, too little); cost (too expensive, too cheap); quality (too good, too poor); distance (too close, too far); flexibility (too much, too little); location (here not there, there not here); audience (too great, too small)
- Problem criteria: should be something pervasive, sustaining, costly, complex, etc.; someone should be willing to pay (exchange value) to solve

# Step Two: Identify Potential Solutions (aka “Ideation”)

- Be open to all possible solutions, regardless of constraints: this is a brainstorming session, not a qualification process
- Not all solutions are practical or suitable
  - the “hammer looking for a nail”
  - the “one trick pony”
  - “boiling the ocean”
  - the “band-aid”
- That said, even impractical or unsuitable solutions could be a revenue generation source
- Solution criteria: should be affordable; should cost less than the problem
- Don’t think about the financial aspects yet

# Step Three: Evaluate The Competitive/ Collaborative Landscape

- What solutions already exist?
- Who are the industry competitors?
- Who are the possible collaborators?
- What is the industry structure and who are the leaders?
  - Monopoly (one player)
  - Oligopoly (a couple of large players)
  - Fragmented (many small players)
- What are the bases of competition?
  - Cost/Affordability
  - Quality/Accuracy
  - Timeliness
  - Features/Services
- What is the profitability of the industry?
- How will you displace existing competitors?
- The Apple question: should you develop a product for a market that does not yet exist or does not yet know it needs or wants the product?

# Step Four: Research & Development Phases

- Follow the “Jack Welch model”: develop rapidly and be prepared to shut down quickly (if necessary) then move on (hopefully you have more than one great idea brewing)
- Generate the idea
- Screen the idea (the “Go/No Go” decision)
- Test the concept (e.g., market messaging, probe for market acceptance and adoption): does the customer understand, need and want the product or service?
- Establish and track analytics (aka Key Performance Metrics, or KPIs)
- “Beta” or marketability tests (e.g., focus groups, surveys, social media impact)
- Record technical aspects (e.g., features and functional specifications)
- Set initial pricing

# Step Five: License The Technology <sup>2</sup>

- What is a license?
  - The right to use your (or someone else's) technology for “consideration”
- Three general types of IP license:
  - License for certain IP rights only – preferred
  - License for all the rights of any kind – film & TV
  - License for all rights to create and market a product that complies with a technical standard
- Licensing may involve other business agreements: R&D, manufacturing, sales, etc.

<sup>2</sup> “Successful Technology Licensing”, World Intellectual Property Organization, IP Assets Management Series, September 2004 (Note: this is an excellent compilation of information on technology licensing.)

# Step Five: Why License?

- Assistance in using IP
- Training
- Development of technology or product
- Manufacturing
- Purchase of products or equipment
- R&D investment
- Distribution
- Consent to use IP belonging to another: e.g., software EULA
- Use of trademark or logo
- Compliance with a technical standard or specification

# Step Five: Licensing Considerations

- What is the business reason for the license?
- What is the subject of the license?
  - Product, formula, specification, protocol, software program, diagrams, documentation, etc.
- What is the state of the licensed good?
  - Completely developed, partially developed, not built
- What rights does the license give?
  - Reproduce, display, modify, make derivative works, use, make or have made, distribute or sell, import, sub-license
- Territory: global, regional, local – how does the Internet impact?
- Exclusivity: when the investment is large
- How much (and how) will the licensee pay?
- How will the technology evolve over time, and what rights does licensee have under those conditions?



# Step Five: Patent <sup>3</sup>

- Patent: “...an intellectual property right granted by the Government of the United States of America to an inventor “to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States” for a limited time in exchange for public disclosure of the invention when the patent is granted.”
- Utility patent: “...new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof.” Term of utility patent: 20 years from filing date.
- Design patent: “... new, original, and ornamental design for an article of manufacture.” Term of design patent: 14 years from date granted.
- Plant patent: “...granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.”

<sup>3</sup> U.S. Patent and Trademark Office; based on U.S. law, not foreign

# Step Five: Trademark, Service Mark or Trade Secret <sup>3</sup>

- Trademark: “...a word, phrase, symbol or design, or a combination of words, phrases, symbols or designs, that identifies and distinguishes the source of the goods of one party from those of others.”
- Service Mark: “...same as a trademark, except that it identifies and distinguishes the source of a service rather than a product.”
- Term: “...as long as the trademark [or service mark] is used in commerce and defended against infringement.”
- Trade Secret: “...protected indefinitely as long as the secret is commercially valuable, its value derives from the fact that it is secret, and the owner take reasonable precautions to maintain its secrecy.”

<sup>3</sup> U.S. Patent and Trademark Office; based on U.S. law, not foreign

# Step Five: Copyright <sup>4</sup>

- Copyright: “...a form of protection provided by the laws of the United States (title 17, *U. S. Code*) to the authors of “original works of authorship,” including literary, dramatic, musical, artistic, and certain other intellectual works.”
- Term: “...depends on several factors, including whether it has been published, and, if so, the date of first publication. As a general rule, for works created after January 1, 1978, copyright protection lasts for the life of the author plus an additional 70 years. For an anonymous work, a pseudonymous work, or a work made for hire, the copyright endures for a term of 95 years from the year of its first publication or a term of 120 years from the year of its creation, whichever expires first. For works first published prior to 1978, the term will vary depending on several factors.”

<sup>4</sup> U.S. Copyright Office; based on U.S. law, not foreign, and enforceable in many, but not all, countries.

# Step Five: Patent, Trademark or Copyright?

- Your technology could involve one or more of these IP protections.
- For example, a hardware product (patent) with a logo or brand (trademark and/or service mark) and an functional spec document, end-user manual or marketing brochure (copyright).

# Step Five: IP Protection

## Key takeaways:

- Seek an IP lawyer; this area is very complex and you don't want your plumber (or yourself) performing brain surgery! (Note: a commercial lawyer, or any other non-IP lawyer, is rarely fully versed or current in IP law. Lawyers are not all the same.)
- Confidentiality agreement is important – don't use Letters of Intent or Memoranda of Understanding (they are not agreements)
- IP protection is very important, but only useful to the extent you have the resources and time to enforce it. Protect and defend what you can. If you don't or can't defend it, for practical purposes, you no longer control it.

# Step Six: Identify Potential Customers And Partners

- How big is the market of potential buyers? (The preceding steps should have helped to identify potential users of your product.)
- Other sources include the enormous amount of data put out by the U.S. federal and State government agencies, statistical organizations, trade organizations, marketing organizations, etc.
- Identify those third party providers who provide the same, similar, complementary or substitute products and services to your target customers.

# Step Six: Common Data Sources

- Bureau of Labor Statistics: <http://www.bls.gov>
- U.S. Census Bureau: [www.census.gov](http://www.census.gov)
- Bureau of Economic Analysis: <http://www.bea.gov/>
- Federal Reserve “Beige” Book:  
<http://www.federalreserve.gov/monetarypolicy/beigebook/>
- The World Bank: <http://data.worldbank.org/indicator/SP.POP.TOTL>
- S.E.C. EDGAR site: [www.sec.gov](http://www.sec.gov)
- Service Corps of Retired Executives (SCORE): invaluable (but limited) advice
- Bloomberg, Reuters and other data retrieval sites
- Hoover’s, Dun & Bradstreet and other business data aggregation sites
- Gartner, Forrester Research, CBIZ, TED and other technology-focused sites
- Securities Analyst reports
- Research/science journals
- Trade Journals
- Industry associations: IEEE, TechAmerica, etc.
- Many, many other sources
  
- Beware: data on the Internet may be readily available, but is it reliable?

# Step Seven: Negotiate The Strategic “Partnerships”

- How will the license agreement make money?
- What resources do you have and what do you need?
- A common joint venture (partnership) structure: “big fish/little fish”
- Protect your IP before and after entering into a partnership: patent, nondisclosure, noncircumvention, KPIs, audit, etc.



# Step Eight: License The Technology

- Long-term solution that is useful when developing the entire product on your own isn't feasible
- Royalty (a form of license): a share of the income the licensee will receive for selling the licensed products, based on **frequency of use** or **revenue generated**. Typical royalty rates: 5%-25%
- License: a share of the income the licensee will receive for selling the licensed products, based on **number of users, units sold** or other factors. Typical license fees are similar to royalty rates, though there can be great differences.
- Owner can collect both for a given product – subject to negotiations

## Royalty rate: The “25% Rule”

- A grants B a license to sell a new product
- B expects to sell product for \$100 per unit; it will cost \$60 to manufacture; Operating Profit (before tax) = \$40 per unit ( $\$100 - \$60$ )
- A should get 25% of B's pretax operating profit ( $\$10 = \$40 \times 25\%$ ), which is 10% of B's net sales ( $10\% = \$10 \div \$100$ )

# Step Eight: Licensing Considerations

- How trustworthy is the prospective licensee? Beware the partner whose scope of participation creeps into stealing your IP
- Is your technology and end-use good or an input for another product?
- What is the expected useful life of your product?
- What is your risk tolerance? Do you want payment up-front, “pay as you go” or at end of contract?
- Get the licensee’s business plan and projected revenues & expenses for the life of the license – discount for risks (adoption, technology shifts, substitutes, etc.)
- **Define the royalty as a percentage of net sales** (net of legitimate deductions like damaged good returns or sales incentive discounts)
- **Never define the royalty as a percentage of profit** – clever accountants can show no profits (or losses) – see the film industry

# Step Nine: Market The Solution

- Research the “natural markets”:
  - what problems does the product solve?
  - who needs the solution?
  - complementary: what other solutions go with your product? e.g., Reese’s peanut butter cup
  - supplementary: what other solutions can leverage your product? CRM software
  - substitute: what solutions does your product replace? automobile replaces covered wagon
- Learn what drives buyer behavior
- More on this later

# Step Ten: Generate And Collect Revenue

- The first \$1 is the hardest – the true test of “proof of concept” is whether anyone will buy
- Generating is not collecting
- What matters is “cash inflow” – we’ll discuss later
- Collect up-front, in installments or at end?
- What’s a “reasonable” profit?
- Depends on the industry and the solution

# Intermezzo No. 1 in A<sup>#</sup>

aka, Stand and Stretch



# Build A Company Or Not?

- What resources – skills, knowledge, technologies, methods of manufacturing, samples of manufacturing and facilities – does it take to commercialize your product?
- Do you have sufficient resources to launch?
- Can you access the resource shortfall(s) without building a company?
- What market expectations might influence the decision?

# Potentially Available Contract Resources

- Ideation/innovation companies and consultants
- Design and prototyping (“modeling”) shops
- Engineering firms
- Fabrication and assembly companies
- Leased manufacturing facilities or office space
- Contract manufacturers
- Marketing firms
- Independent sales organizations and individuals
- Value Added Resellers and integrators
- Distributors
- Law, Accounting, HR and IT firms
- Virtual personal assistants
- These may be domestic or international – for example, due mostly to the labor differential and commoditization, most of the printed circuit board industry is overseas
- Note: the improved quality and ubiquity of 3D printers has considerably reduced the cost of producing samples (or even small amounts – “short runs” – of finished goods).

# Before You Decide To Build A Company

Think about investors' alternatives:

- What returns do public companies earn?
- What returns do private companies earn?
- What about companies in the industry?
- What about companies with similar technologies?
- What about companies at similar stages of development?



# Historical Pattern of Expected Returns

- Prior to 1980, the average annual return on publicly traded common stock was around 10%-14%
- From 1980-1999, annualized return jumped to around 25%
- What happened in March-April 2000?
- From April 2000-end of 2002, market grew modestly
- In 2003, market recovered: up almost 40%
- From 2004-2007, average return was about 12%
- What happened in September 2008?
- Average return for 2000-2010: almost zero
- However, if you stuck it out from 2007-2010, you almost fully recovered from the 2008 debacle.
- Long-run return on public common stock, 1929-2006: risk-free rate plus around 9% (12%-15% in total)
- Projection for 2010-2020 (public): 6%-10%
- Historical returns to private equity: 15%-25% or more
- **Historical returns to venture capital: 25%-50% or more**

## Takeaways:

- It depends when and where you play: small companies are riskier and, consequently, investors demand greater reward
- Markets are volatile – more now than ever – and this will continue
- **More than 90% of start-ups fail in the first 3 years – why?**

# So, You Want To Build A Company

- What makes a good business?
  - Solves a problem others will pay for
  - Strong value proposition
  - Clear focus on the vision
  - Good leadership
  - Consistent, high-quality execution
  - Has the potential to reward the owner(s) adequately for the risks they take on
- What makes one business more desirable than another?

# How Fast Will I Grow?

- Growth of market (aka market adoption)
- Population – frequently cited but seldom the primary driver – why?
- Existing market
  - How big is the market already? (Beware the Law of Large Numbers.)
  - Look at existing players' revenue and profit growth over time
  - “chinks in the armor” that might allow you to steal market share at another's expense
- New market – who knows? Is there a proxy for market adoption?
  - the Internet
  - Personal computers
  - PDAs
  - Laptops and notebooks
  - Mobile phones/smart phones
  - Social media
- Refine as much as possible to the specifics of your venture
- Growth is limited by available resources, customers' willingness to change, etc.

# Entity Formation

- Shareholder agreement: memorializes intent when things are good so you know how to resolve when things are bad
- What legal and tax structure?
  - C-Corporation
  - Limited Liability Company (LLC)
  - S-Corporation
  - Partnership
  - B-Corporation
- Consult a small business attorney and tax accountant!

# Personal Funding Sources

- Use this first; you'll preserve equity longer
- Savings and monetizable assets: cash, credit cards, home, auto, art, jewelry, gems, coins, unloved relatives and pets, etc. OK, maybe not the pets.
- Borrowing from an Individual Retirement Account (IRA or 401(k) account): beware taxes
- The 3 F's (Family, Friends and Fools): loan, investment, crowdfunding, microloan

# Grants and Tax Credits

- **Small Business Innovation Research (SBIR)** grant: 3-phase program (feasibility - \$150K max for 6 months, R&D - \$1M max for 2 years, and commercialization – not funded); eligibility requirements (for-profit, U.S. citizen- or PR-controlled, 500 or fewer employees); 11 federal agencies participate
- **Small Business Technology Transfer (STTR)** grant: 3-phase program (feasibility - \$100K max for 1 year, R&D - \$750K max for 2 years, and commercialization – not funded); eligibility requirements (for-profit, U.S. citizen- or PR-controlled, 500 or fewer employees); 5 federal agencies participate
- **Defense Advanced Research Projects Agency (DARPA)** grant
- **Defense Information Systems Agency (DISA)** grant
- U.S. Dept of Treasury Community Development Financial Institutions Fund (CDIF) New Market Tax Credit
- CA Office of Business and Economic Development
- L.A. County Economic Development Corporation
- L.A. County Community Development Commission
- IRC tax credits: §195 start-up expenses credit & §179 depreciation credit
- Many more

# Business Funding Sources

- Customers: purchase order financing, accounts receivable (factoring and terms), credit card merchant cash advance, and advance payments
- Vendors
- Small Business Administration (SBA): 7(a) loan (small business), 504 loan (real estate), CAPLine (working capital), export assistance, military reservist call-up loan
- Bank/credit union/specialty finance company loans: term loan; working capital line of credit (ABL), asset leases (auto, building, equipment), unsecured line of credit
- Opportunity Fund loans: \$2,600-\$100,000, 8.5%-12%

# Institutional Funding Sources

- Small Business Investment Company (SBIC)
- Certified MBE/WBE/DBE: Individual Development Accounts (IDAs); SBA 8(a) program; SBA HUBZone program; U.S. Dept of Commerce Minority Business Development Agency;
- FedEx Small Business Grant Contest and others
- Angel/private investor seed money: LAVA, Pasadena Angels, Tech Coast Angels, Keiretsu Forum, AngelList
- Venture Capital: early-stage companies
- Many established tech companies have a VC subsidiary
- Private Equity: established growth companies & "fallen angels"
- Capital Markets (public debt or equity)
- Government vendor programs:
  - Women-Owned Small Business Federal Contract program
  - SBA Service-Disabled Veteran-Owned Small Business Concern Procurement program
  - L.A. City, L.A. County, California and federal approved vendor lists



# The Technologist's Exit

- Sale of Intellectual Property (intangible) and/or assets (tangible): transfer ownership to another
- License IP for a royalty stream: retain ownership
- Exchange of IP or assets for other “assets”
- Private capital raise (angel, VC, PE)
- Public capital raise (aka “IPO”)
- Governmental capital raise (aka “grant”)
- Private gift or donation (e.g., family succession, charity)
- Public “gift” (e.g., VISTA, LINUX, hacker code)
- Planned obsolescence: the opposite of commercialization, but you may be paid

# What Does a VC Look For?

- An introduction from a known party
- Relevance with their investment philosophy
- A focused presentation: 10-20 slides max; you get 20 minutes, maybe
- Large, (eventually) profitable potential market
- Evolutionary (incremental) or revolutionary (completely new direction)?
- Rapid growth trajectory
- Scalable solution
- Need for outside funds to achieve growth
- High rate of return on investment
- Proof of concept or established market foothold (aka “beachhead”)
- Differentiation from competitors
- Good management, able to change and evolve as needed
- Board representation and influence
- A personal “fit”
- Willingness to be coached, accept constructive criticism or feedback, and implement recommendations

Source: Ron Miller; *“Want Venture Capital? Here Are 10 Must-Haves”*, Geri Stengel, Forbes Magazine, 11/20/2013, <http://www.forbes.com/sites/geristengel/2013/11/20/want-venture-capital-here-are-10-must-haves/2/>

# How Do You Know The VC Is Interested?

- Within a few minutes, the VC is analyzing your idea to see how it could be improved: turning a \$1M idea into a \$1B idea
- Several VC members are debating the best way for your company or product to penetrate the market
- You and they are still there 30 minutes later
- There's a clear "fit" – complementary or additional leverage – with one of their portfolio companies
- S/he didn't fall asleep during your 100-slide "pitch"
- S/he's not spending time surfing the Net, texting or emailing someone, or returning phone calls (sometimes all three at once)
- S/he didn't race to the elevator & try to close the door
- S/he didn't tell you "we're interested if you can get XYZ investor" – the unstated "no"

# What Not to Discuss With a VC

- Big (unrealized) plans. (No one pays you for work they'll have to do themselves.)
- Ideas that aren't a part of your current pitch: a new product, acquisition, etc. (These can confuse your message.)
- Your dislike of working for someone else. (We all answer to someone! Investors, bankers, vendors who haven't been paid, regulators, tax authorities, employees who need your time, significant others – all think that you work for them on some level.)
- Your brilliant plan to enrich yourself at others' expense, legally or otherwise. (No one likes to be misled, cheated, or to associate with liars, cheaters and thieves. Not to be confused with sales "puffing" or constructive deception – the "little white lie" – to Brangelina: "LeBron is in if you're in" and to LeBron: "They're in if you are" – well, we expect each but, honestly, none are in yet.)
- Your firm belief of the market value of your business. (It's more important to focus on how much equity to give up at what stage of development. Better to have a small percentage of a huge pie than 100% of nothing.)

Source: Ron Miller; *"The Venture Capital Handbook"*, David & Laura Gladstone

# Some Local VCs

Anthem Ventures	Fortunelab LLC	Shelter Capital Partners
Arcturus Capital	Global Technology Invstmnts	Smart Technology Ventures
Baroda Ventures	HandsOn Ventures	Spectra Enterprise Assoc
Beringea	Idealab!	St. Cloud Capital Partners
Brentwood Associates	ITU Ventures	Steamboat Ventures
Celerity Partners SBIC	Leonard Green & Partners	Stone Canyon Venture Ptnr
Centre Palisades Ventures	Oaktree Capital Mgmt	Sun Capital Partners
Centre Partners Mgmt LLC	Pacific Venture Group	The Riverside Co.
Clarity Partners	Palomar Ventures	UnionBanCal Venture Corp
Clearstone Venture Ptnrs	Peregrine Ventures	Upfront Ventures
Clearview Capital	Redleaf Group LLC	Vicente Partners SBIC
Falcon Fund	Redpoint Ventures	Wasserstein Ventures SBIC
Fenway Partners	Research Corp Technologies	Windward Ventures
Funk Ventures	Riodan Lewis & Haden	Zone Ventures
GKM Ventures	Rustic Canyon Group SBIC	Many more...

# Typical VC Investment

- Initial investment: \$50,000 to \$5 million (maybe more for a capital-intensive business; e.g., Tesla and SpaceX)
- Convertible, cumulative preferred stock
- Control interest (50.1% or more of voting stock)
- Multiple rounds of financing (hopefully all “up” rounds), depending on hitting metrics (e.g., “proof of concept”, beta test, 1<sup>st</sup> sale, etc.)
- Dramatic ramp-up over several years, then a big exit
- Potential exits:
  - Sale of company or assets to another company
  - Consolidation with another company
  - Initial Public Offering
- Realized return target: 10X or more on invested capital
- Founder’s stake at exit: 2%-10% not unusual
- Possibly an “earn-out” over time if results are dependent on continued contributions of founder – beware, earn-outs are rarely earned
- Note: VCs seldom fund ideas – build the prototype, get to beta, etc.

# Intermezzo No. 2 in C<sup>#</sup>

aka, Stand and Stretch



# Business Basics We Should Know

- **Strategic planning** is the process for initiating, maintaining and regaining effective competitive positions.
- **Sales and marketing** are the means for connecting stakeholders – buyers, vendors, partners and investors – with products and services.
- **Finance** is the toolkit for ensuring that we efficiently allocate scarce resources across the business.
- **Accounting** is the language of business and we need to understand what investors, lenders, and others are saying.



# Strategic Planning Tools

- SWOT-PEST Analysis
  - Strengths and Weaknesses (Internal)
  - Opportunities and Threats (External)
  - Political, Economic, Socio-Psychological and Technological Factors
- Porter's 5 Forces<sup>6</sup>
  - Bargaining Power of Customers
  - Bargaining Power of Suppliers
  - Existing Rivalries
  - Threat of New Entrants
  - Substitute Products And/Or Services
- Value Chain Analysis<sup>1</sup>
  - Primary Activities: Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, Service
  - Support Activities: Finance & Accounting ("Firm Infrastructure"), Human Resources, IT, Procurement

<sup>6</sup> Developed by Dr. Michael Porter, Harvard Business School, see "Competitive Advantage"

# Marketing Strategy

- The historical marketing model (aka the “4 P’s”):
  - **Product** (features and solutions)
  - **Price** (unique product = “differentiation”; commodity = “low cost”)
  - **Place** (where & how to get it to the end-user)
  - **Promotion** (packaging, advertising)
- The “new” marketing model <sup>5</sup>:
  - **Think** (what are customers doing and why? what problems does product solve? Use data and analytics to develop insights)
  - **Feel** (why do they buy? What do they perceive about the brand? how do they feel about the product?)
  - **Do** (create a total brand experience across multiple channels and touchpoints)
- Target the solution to the most attractive market(s) – you need traction
- Use market feedback to adapt and evolve the product – don’t try to design the perfect product or you will never launch (or launch too late)

<sup>5</sup> “Think-Feel-Do, The New Basics of Marketing”, Harvard Business Review, July/August 2014; “Think. Feel. Do. – Understanding the New Basics of Marketing”, Ana Devic, Johnson Direct, September 5, 2014

# Sales Plan

- Sales & marketing are a process, not an event - start with your affinity groups
- Successful sales is the result of leveraging your network and good follow-up
- Determine the goals, then build the process
- Think about sales metrics:
  - # of referral requests (aka “warm introductions”)/week
  - # of initial phone calls/day (voicemails don’t count)
  - # of initial meetings/week – have a plan for overcoming objections
  - # of follow-up phone calls & meetings/week
  - # of “close” meetings/month
  - # of sales follow-up meetings (check the experience, upsell)
- My examples: Merrill Lynch
  - Investment Banking Analyst goal: get on coveted Institutional Investor Top Analysts list
  - Metrics: 250 calls/month to industry executives
  - Result: success! Key information percolated up and relationships built trust
  - Financial Advisor goal: bring in \$1M-\$5M/month (continuously increasing amounts)
  - Metrics: 50 calls/day; 8 initial meetings/week; 2 follow-up meetings/week; 1 close meeting/month
  - Result: initial success, but failure later! The emphasis on \$ was misguided – luck mattered
- Takeaway: the process drives the result

# Accounting Definitions #1

- Asset: anything of value that may be converted to cash (immediately or over time)
- Current Assets: generally, assets realizable within one year
- Noncurrent assets: realizable in more than one year
- Accounts receivable, inventory, facilities, equipment, capital leases, IP intangibles, capital investments (companies or long-term investments owned)
- Liability: an obligation that legally binds a company to settle a debt
- Current Liabilities: generally, liabilities payable within one year
- Long-term liabilities: payable in more than one year
- Accounts payable, wages payable, taxes payable, notes payable, lines of credit, capital lease liabilities, borrowings (long-term loans and leases)
- Owners' equity: the residual interest in the assets of the business after payment or deduction of liabilities
- $\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$ , AND
- $\text{Owners' Equity} = \text{Assets} - \text{Liabilities}$
- Working Capital:  $\text{Current Assets} - \text{Current Liabilities}$

# Accounting “Balance Sheet”

XYZ Company								
Balance Sheet as of December 31								
	201X	201Y	201Z		201X	201Y	201Z	
Assets				Liabilities & Owners' Equity				
<b>Current Assets</b>				<b>Current Liabilities</b>				
Cash	20	22	5	Accounts payable	50	55	75	
Accounts receivable	100	120	150	Wages payable	10	11	50	
Inventory	250	300	500	Taxes payable	5	7	15	
Prepaid insurance	20	15	20	ST notes payable (CPLTD)	50	53	60	
Current Assets	390	457	675	Line of Credit	75	80	200	
<b>Long-Term Assets</b>				Current Liabilities	190	206	400	
Facilities	500	510	600	<b>Long-Term Liabilities</b>				
Equipment	200	225	500	Long-term debt	500	525	600	
Accumulated Depreciation	-150	-160	-200	CPLTD	-50	-53	-60	
Net PP&E	550	575	900	Long-term debt, net of CPLTD	450	473	540	
Intangibles:				Total Liabilities	640	678	940	
Goodwill Acquired	100	80	60	<b>Owners' Equity</b>				
Goodwill amortization	-20	-20	-20	Common stock	100	100	100	
<b>Total Assets</b>	1,020	1,092	1,615	Deferred tax benefit (liability)	849	374	-234	
				Retained earnings	-569	-60	809	
				Total Owners' Equity	380	414	675	
				<b>Total Liabilities &amp; Owners' Equity</b>	1,020	1,092	1,615	

# Accounting Definitions #2

- Revenue (aka “sales”): a measure of income representing the amount generated from sale of goods or services over a period of time
- Expense: a measure of the outflow or deduction from income for costs of sales, selling and marketing, general and administrative, operating (rent, utilities, supplies, etc.), financing (interest and dividends) and taxes
- Gross Profit = Sales – Cost of Sales
- Operating Profit (aka “Earnings Before Interest and Taxes” or “EBIT”):  $\text{Gross Profit} - \text{operating expenses}$
- “Earnings Before Interest, Taxes, Depreciation and Amortization” or “EBITDA”): a modification on EBIT commonly used in valuing a company
- Pretax Income (Earnings) =  $\text{Operating Profit} - \text{Interest Expense}$
- Net Profit (Income) =  $\text{Pretax Profit} - \text{Tax Expense}$
- Net Income to Common =  $\text{Net Profit} - \text{Dividends}$

# Accounting “Income Statement” (aka “Profit & Loss Statement”, or

## P&L)

XYZ Company			
Income Statement for period ended December 31			
	201X	201Y	201Z
<b>Revenue</b>	500	1,000	2,500
Cost of sales	-600	-600	-880
<b>Gross profit</b>	<b>-100</b>	<b>400</b>	<b>1,620</b>
Operating expenses:			
Sales & marketing	75	110	150
R&D expense	300	200	400
Salaries	10	50	120
Rent	15	20	22
Utilities	10	15	16
Supplies	1	2	3
Depreciation & amortization	8	10	40
Total operating expenses	419	407	751
<b>Operating profit (EBIT):</b>	<b>-519</b>	<b>-7</b>	<b>869</b>
Interest expense	-50	-53	-60
<b>Pretax profit</b>	<b>-569</b>	<b>-60</b>	<b>809</b>
Tax (expense) credit	569	60	0
<b>Net profit (loss)</b>	<b>0</b>	<b>0</b>	<b>809</b>
Cumulative NOLs available	569	629	305
Tax expense (40% combined fed & state)			324

# Accounting Definitions #3

- Cash From Operations:
  - Indirect Method: Net Income – Depreciation – Changes in working capital
  - Direct Method (seldom used): Collections – Disbursements
- Cash from Investment: Cash paid (received) to purchase (sell) long-term assets
- Cash From Financing: Cash paid (received) for debt repayment (borrowing) and dividends
- Change in Cash = Net Cash From Operations + Net Cash From Investment + Net Cash From Financing



# Accounting “Statement of Cash Flows”

Statement of Cash Flows for period ended December 31		
	201Y	201Z
<b>Cash from operations:</b>		
Net Income (loss)	0	809
Add back depreciation & amortization	10	40
Changes in working capital accounts:		
Accounts receivable	-20	-30
Inventory	-50	-200
Prepaid expenses	5	-5
Accounts payable	5	20
Wages payable	1	39
Taxes payable	2	8
NOL credit	60	-324
<b>Net Cash From Operations</b>	<b>13</b>	<b>357</b>
<b>Cash from investing:</b>		
Facilities purchases	-10	-90
Equipment purchases	-25	-275
<b>Net Cash From Investing</b>	<b>-35</b>	<b>-365</b>
<b>Cash from financing:</b>		
Short-term debt borrowing	3	8
Lines of credit borrowing	5	120
Long-term debt borrowing	25	75
Dividends paid	0	0
<b>Net Cash From Financing</b>	<b>33</b>	<b>203</b>

# Financial Planning and Analysis Tools

- Sensitivity Analysis: impact on variables from a change in a factor (e.g., if we increase or decrease this, what happens to that?)
- Trend Analysis:
  - Horizontal: changes from a base year
  - Vertical: percentages of a base number (revenue for income statement and total assets for balance sheet)
- Ratio Analysis: relative performance of company over time or performance compared to other (comparable) companies
  - Liquidity: current, quick
  - Profitability: accounting- and cash flow-based
  - Efficiency: turnover; DSO, DCI, DPO and cash cycle
  - Leverage and coverage: book value- and market value-based
- Budgeting (short-term) and Forecasting (long-term)
- Equipment purchase decisions (controllable cost savings approach)
- Project acceptance/rejection decisions: **D**iscounted **C**ash **F**low (DCF); **N**et **P**resent **V**alue (NPV); **I**nternal **R**ate of **R**eturn (IRR)
- Statistical Analysis: Six Sigma, Lean, Process Excellence, etc.

# Ratio Analysis

Ratio	201Y	201Z		Ratio	201Y	201Z
<b>Liquidity</b>				<b>Growth</b>		
Current	2.2	1.7		Revenue		150%
Quick	0.8	0.4		EBITDA		30,200%
				Net income		NM
<b>Efficiency (days)</b>				Assets		7.1%
Days Sales Out	40.2	19.7		Equity		8.9%
Days Cost Invtry	167.3	165.9				
Days Pybls Out	31.9	27.0		<b>Profitability</b>		
Cash cycle	175.5	158.7		Gross margin	40.0%	64.8%
				EBITDA margin	0.3%	36.4%
<b>Leverage</b>				Net margin	NM	32.4%
Debt-to-Equity	146%	119%		Return on Assets	NM	59.8%
Debt-to-Assets	55%	50%		Return on Equity	NM	148.6%

# Valuation Approaches

- **Comparable (Guideline) Companies Approach:** a relative value based on other similar companies (usually public companies or reported transactions of private companies), using multiples of either Market Value of Equity or Enterprise Value (market value of equity + market value of debt)
- **Income Approach:** a value based on the discounted income stream (usually free cash flow) of the subject company, normalized (adjusted) for excessive, insufficient, abnormal or nonrecurring cash inflows and outflows
  - DCF/NPV/IRR
  - Owner's Earnings
- **Asset Approach:** the net book value of a company after deducting market value of liabilities from market value of assets
- What are the challenges with using an asset approach for a start-up?
- A special case: Option Analysis – very useful but complex, with lots of assumptions (we won't discuss this)

# Valuation Challenges For A Start-Up

- **Comparables Approach:**
  - Similar companies: product mix, multiple divisions, conglomerates, etc.
  - Public companies as proxies for private companies: discount for lack of liquidity , control premium (or discount for lack of control)
  - Availability of private company information: most private transactions aren't disclosed and those that are often don't have much useful information
  - Market values are usually inferred: most equity and debt isn't traded
- **Income Approach:**
  - Many assumptions with no means to compare directly to other companies
  - Based on financial projections: how accurate?
  - Adjustments can be subjective: what's "normal"? What's nonrecurring?
  - How to determine discount rate and terminal value? Even the slightest change can cause a large value swing
- **Asset Approach:**
  - Market values of assets and liabilities: most don't trade on a market
  - May be based on a break-up or "fire sale" transaction – are you on fire?

# Valuation Metrics

- Common Comparable (Guideline) Companies multiples:
  - Market Value-to-Net Income (aka “Price-Earnings” or “P/E” multiple): public minority interest metric
  - Enterprise Value-to-EBITDA: control interest metric
  - Enterprise Value – MV Debt = Equity Value
  - What multiples to use when?
- Income Approach value: annualized Free Cash Flow (net cash flow – capital investment) divided by a discount rate representing the level of risk of the investment:
- e.g., \$100 FCF income ÷ 10% discount = \$1,000
- Asset Approach: the net book value of a company after deducting market value of liabilities from market value of assets

# Valuation Example

- Enterprise Value-to-EBITDA multiple of 5X and subject company EBITDA of \$200:  $\$200 \times 5.0$  multiple = \$1,000 Enterprise Value
- Discounted cash flow valuation of \$1,000
- Net Asset Value of \$850
- Assume subject company is a “going concern” with no debt
- Comparables value of \$1,000; DCF valuation of \$1,000 and NAV of \$850
- How much “weight” to assign to each approach?

# Key Infrastructure Functions

- **Corporate finance:** managing working capital and long-term assets & liabilities
- **Financial planning and analysis:** predicting and adapting to (and occasionally creating) the future
- **Capital markets:** borrowing, raising equity and M&A
- **Strategic planning**
- **Enterprise Risk Management:** new COSO framework for 2013
- **Performance measurement and management:** how are we doing? Compared to? How should we be incented and compensated?
- **Accounting and reporting:** in many organizations, this has become so complex and specialized as to require a full-time accountant (usually reporting to a CFO) – start-up may only need P/T initially
- **Management information**
- Oversight of **HR, IT and project management**
- **Contract management**
- Show us some mercy!: this job is too big for any one person



# Last Thoughts

- Follow your passion, live your dream
- Find the point where what you're good at and what you love to do come together
- Seek out mentors and advisors
- Take calculated risk, avoid foolish risk when possible
- Failure is not fatal (unless your life is at stake)
- If you fail, fail greatly, and learn from your mistakes
- Building a product or a business is hard!
- Hope for the best, plan for the worst
- Life is short – on your dying day, you don't want your last thoughts to be “I wish I did that”

Questions?

Thank You For Your Participation!



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