

# Financing Technology-Based Start-Up Companies

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With thanks to:

Jonathan Fleming (who in turn thanked me)  
Charley Lax

# Financial Issues

- ❑ How am I going to finance the company's development?
- ❑ What's the end game?

# First Strategic Issue

- ❑ What sort of company is this going to be?
  - ❑ Lifestyle
  - ❑ Acquirable
  - ❑ IPO and independence
  
- ❑ I don't know and need to think about it some more

## Lifestyle

- ❑ Cash-flow positive
- ❑ Supports one (maybe 2) Chiefs (Hunters) well and a small number of Worker Bees (Gatherers) reasonably well
  - ❑ Total employment 5 - 20
- ❑ Non-scalable
- ❑ Non-investable – no ability to make an attractive exit
  - ❑ Grants
  - ❑ Loans
  - ❑ Friends and family may invest
  - ❑ No exit - investor return via dividends
- ❑ Typical lifestyle businesses:
  - ❑ Service businesses
  - ❑ Low margin
  - ❑ Low growth rate

-- but never forget, lifestyles are good

# Acquirable

- ❑ Capital efficient
- ❑ Scalable
  - ❑ Not dependent on key individuals
  - ❑ Total employment typically 10 - 50
- ❑ Investable – Potential ROI
  - ❑ Type of investment depends on specific market
  - ❑ Angel vs. VC
- ❑ Exit is acquisition by company with strategic interest in the business
- ❑ In some industries, acquisition is only exit, mostly due to cost of building sales, distribution and service networks.

# IPO

Must be a big opportunity!

- ❑ Large market size
- ❑ High growth rate
- ❑ High margins
- ❑ Total employment 50 – 200+

## Second Strategic Issue

- ❑ What's the Right Financing Strategy?



# Source of Initial Funding for New Companies

## ☐ No External Funding

- ☐ Bootstrap
- ☐ Work for equity
- ☐ Credit card/Second mortgage

## ☐ Grants

- ☐ Federal Funding
- ☐ State Funding
- ☐ University Funding
- ☐ Foundation Funding
- ☐ Corporate Grants

## ☐ Individual Investors

- ☐ Friends and Family
- ☐ Individual Angel(s)
- ☐ Angel Networks
- ☐ Crowd Funding

## ☐ Institutional Investors

- ☐ Accelerator
- ☐ Venture Capital
- ☐ Corporate Partner/Customer

# Bootstrapping

- ❑ An old fashioned concept: Early Stage SALES
  - ❑ Provide credibility / proof of market
  - ❑ Sales vs. “Fee for service”
  - ❑ Sometimes seen as a distraction
  - ❑ Usually exposes new opportunities
- ❑ License Opportunities
  - ❑ Up-front cash payments
  - ❑ Specific non-core field of use
  - ❑ Non-core technologies

## In-Kind Services

- ❑ Management
- ❑ Directors
- ❑ Legal
- ❑ Accounting
- ❑ Scientific Advisors
- ❑ Individual Consultants
  - ❑ Scientific Development
  - ❑ Business Development

**But Don't Give Away the Farm !!**

# Business School As An Incubator

- ❑ Sounding board for ideas
  - ❑ Get credit for it
- ❑ Great team
- ❑ Great advisors
- ❑ Beta customers
- ❑ Investors
- ❑ Business school business plan competitions
  - ❑ Great list: <http://www.davidblerner.com/>
  - ❑ Don't get too excited -- most of the money is in-kind
- ❑ Industry connections

# Grants

- ❑ Federal:
  - ❑ SBIR
  - ❑ CIA/DOD
  - ❑ DOE
  - ❑ NIH/NSF
- ❑ State Funding
  - ❑ Training
  - ❑ Infrastructure
  - ❑ Loan Guarantees
- ❑ University Gap Funds: Ignition Awards
- ❑ Corporate Foundations: Johnson & Johnson COSAT
- ❑ Foundations
  - ❑ CFF, Gates, Stanley, JDRF, MDA, ALS

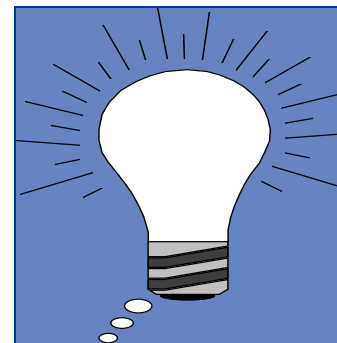
## SBIR/STTR Programs

- ❑ SBIR: Set-aside program for small business concerns to engage in federal R&D - with potential for commercialization
- ❑ STTR: Set-aside program to facilitate cooperative R&D between small business concerns and U.S. research institutions - with potential for commercialization
- ❑ \$3 billion annually – 2.8% of all federal R&D budgets in 2014
  - ❑ Increasing progressively to 3.6%

# SBIR/STTR: 3-Phase Program

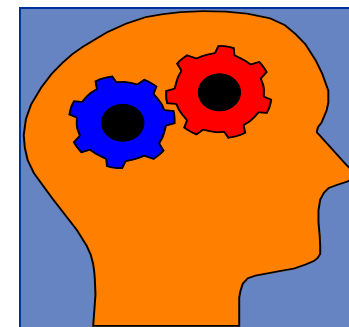
## ❑ PHASE I

- ❑ Feasibility study
- ❑ Upto \$225K and 6 months (SBIR)  
or 12 months (STTR)



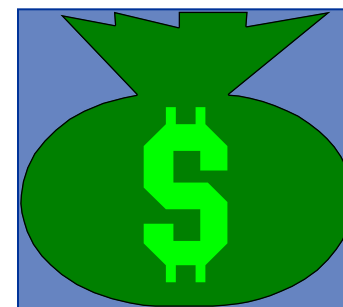
## ❑ PHASE II

- ❑ Full R/R&D
- ❑ 2-Year Award and upto \$1.5 million



## ❑ PHASE III

- ❑ Commercialization Stage
- ❑ Use of non-SBIR Funds
- ❑ But some creative transitional programs



# J&J COSAT

## Example of a Corporate Grant

- ❑ The Corporate Office of Science and Technology (COSAT) was created in 1978 to foster our company's long-standing focus on innovation and entrepreneurship. It was formed by assembling a team of senior scientists and clinicians whose primary objective is to identify, nurture, and guide emerging technologies and products, ensuring that Johnson & Johnson's long history of success continues well into the future.
- ❑ A notable feature of the program is **that no proprietary claim is made on the research carried out through a Focused Funding Grant**. It is more important to us that the relationship built between Johnson & Johnson and the grant recipient may lead to research agreements or business arrangements when appropriate.



# Foundations

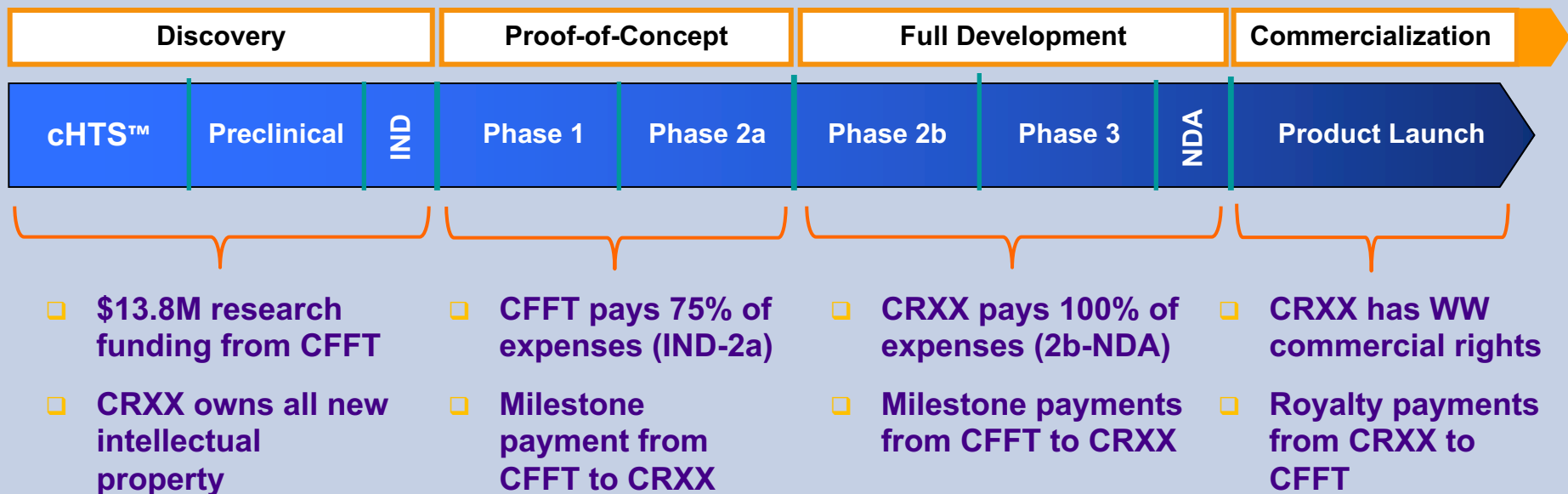
**Thousands of Foundations → Many Missions**

- ❑ Disease Missions
  - ❑ CFF – PathoGenesis, Vertex, Altus,
  - ❑ Gates – Example of vaccines
  - ❑ Stanley – Catalyzing new treatments for Schizophrenia
  - ❑ JDRF – Example of smart cells
  - ❑ Google - \$20 million for new diagnostic test for Rwanda
- ❑ Environmental Missions
- ❑ Education Missions
- ❑ Developing World Missions
- ❑ Middle East Missions
- ❑ BIRD funding partnerships of Palestinian, Israeli companies with USA companies

## Example of a Foundation Grant

- ❑ 2006 “Venture Philanthropy” deal between CombinatoRx and Cystic Fibrosis Foundation Therapeutics
- ❑ HTS for synergistic drug combinations to treat cystic fibrosis
- ❑ Terminated May 2009

## CRXX- CFFT Deal Structure



- ❑ Funding from bench through patient POC plus 100% commercial rights
- ❑ Royalty payments till 2x returned to CFFT

# Japanese Sources of Gap Funding -- Government

Name of funds	Administration	Purpose	Funding Range(\$)
A-step (Feasibility Study stage)	JST	Proof of Concept	20k-80k/year
A-step (Pre Seed stage)	JST	New business	250K-400K/year
Regional Innovative new business creation grants	METI	Regional New business (SMEs)	80K-400k/year
Supporting Industry grants	METI	New business (Manufacturing SMEs)	600K/3 years
Solution based medical devices development grants	METI	New medical devices development	1,000K/3 years
Supporting Program for Drug Discovery	MHLW	Drug development	80K-150K

# Japanese Sources of Gap Funding -- Private

Name of Fund	Administration	Purpose	Fund Range (\$)
Drug Discovery Competition Shionogi Innovation	Shionogi Co., Ltd.	Joint Research for Drug Discovery	60K-120K/year
TaNeDS	Daiichi Sankyo	Joint Research for Drug Discovery	Max250K/year
a cube	Astellas Pharma. Inc	Joint Research for Drug Discovery	10K-1000K
KATANA fund	Private consortium(Angels, cooperation )	Focus on IT start-ups	Max 50k

# Japanese Sources of Gap Funding – Osaka Univ.

Name of Fund	Administration	Purpose	Fund Range (\$)
Handai UIC Gap fund	Office for University-Industry Collaboration, Osaka University	Proof of Concept	10 K – 25 K /year

# **Individual Investors**

# Friends and Family

- ❑ Also known as “Friends, families and fools”
- ❑ (Relatively) easy, informal
- ❑ Consequences of failure severe
- ❑ Must show your own skin is in the game
- ❑ Maybe \$100 – 250k



# Angels

- ❑ Individual, “Accredited” individuals:
  - ❑ Net worth (excluding primary residence) >\$1 million, or
  - ❑ Income >\$200,000 in each of two preceding years
- ❑ Not known to entrepreneur prior to investment
- ❑ Major source of early stage investment
- ❑ Risk tolerant
- ❑ Often knowledgeable about the industry; expertise can be very helpful
- ❑ Acting more and more like VCs and investing in multiple rounds
- ❑ Normally \$25K to \$250K Per Angel
- ❑ Approximately 250,000 Individuals in the USA

# Understand The Motivational Factors of Angels

- ❑ Staying Involved in Small Business
- ❑ Give-back as a Mentor
- ❑ Affection for Entrepreneurs
- ❑ Investment of “Mad Money”

# Angel Groups

- ❑ Aka “Bands of Angels”
- ❑ Organizations of angels
- ❑ One or two staff to organize meetings, screen proposed investments
- ❑ Presentations made to gatherings
- ❑ 170 USA Angel Networks

## Boston Area Angel Groups

- ❑ Angel Healthcare Investors LLC – Newton, MA (healthcare)
- ❑ Bay Angels - Boston
- ❑ Beacon Angels - Boston, MA
- ❑ CommonAngels – Lexington, MA (software)
- ❑ HubAngels – Brookline, MA (technology)
- ❑ Launchpad Venture Group – Wellesley, MA (technology)
- ❑ River Valley Investors – Springfield, MA
- ❑ TiE Angel Forum – Wellesley Hills, MA
- ❑ Walnut Venture Group – Wellesley Hills, MA (technology)
- ❑ Breakfast Club – Nashua, NH
- ❑ Keiretsu Forum – Boston, MA
- ❑ Investors Circle – Boston, MA (socially responsible investments)

Source: Foley & Lardner; Mass High Tech, ~2010

## Some Angel Websites

- ❑ Angel [www.angel.com](http://www.angel.com)
- ❑ GUST [gust.com/](http://gust.com/)
- ❑ AngelList [angel.co/](http://angel.co/)
- ❑ Keiretsu Forum [www.keiretsuforum.com](http://www.keiretsuforum.com)
- ❑ Angel Invstmt Ntwk [www.newenglandinvestmentnetwork.com](http://www.newenglandinvestmentnetwork.com)

# Angel/Friends and Family Financing

- ❑ Done through a Convertible Note
  - ❑ A loan intended not to be repaid but to convert into stock later
    - ❑ Cheaper – two page document
    - ❑ Allows professional investors to set value subsequently
      - ❑ You don't want to take advantage of/overcharge your grandmother!
  - ❑ Can build in a profit by arranging conversion at a discount to next round
    - ❑ 20% discount = 25% mark-up
- ❑ Angels and F&F frequently only good for one round
- ❑ Can complicate later financings
  - ❑ Multiple signatures and approvals needed for corporate actions
  - ❑ Can sell interests in an LLC
    - ❑ Single signatory
    - ❑ Majority vote of ownership interests to approve corporate actions

# Crowd Funding

- ❑ Raising money over the Internet
- ❑ Currently a violation of the 1933 Securities Act
  - ❑ Remember, investors must be “Accredited”
- ❑ Current websites trade products for investment
  - ❑ Charitable donations
  - ❑ [www.webdesigncore.com/2011/08/11/15-crowdfunding-websites-to-help-you-change-the-world/](http://www.webdesigncore.com/2011/08/11/15-crowdfunding-websites-to-help-you-change-the-world/)
- ❑ Dozens of sites
  - ❑ Kickstarter and IndieGoGo best known

# KICKSTARTER

- ❑ Venture backed
  - ❑ Takes 5% of funds raised
  - ❑ Amazon Payments takes 3-5%
- ❑ Post description
  - ❑ See if it takes off
  - ❑ Once posted, can't take down
- ❑ \$731 million raised 2009 through mid-2013
  - ❑ 44% success rate
  - ❑ Top raise \$10 million (Pebble Watch)
  - ❑ Average ~\$5,000
- ❑ Only funds projects
  - ❑ Not start-up companies
  - ❑ Raised more for the arts than the NEA in 2011!



# Changing the Law

- ❑ Already legal in UK
- ❑ JOBS Act of 2012
  - ❑ Signed April 5, 2012
    - ❑ Final regulations were due January 1, 2013
      - ❑ Over 500 days late!
  - ❑ Investments must be through Funding Portal that meets requirements of the Act
  - ❑ Limits on total per company
    - ❑ \$1 million per year
  - ❑ Amount per investor per company
    - ❑ \$1,000 - \$100,000, depending on Net Worth and Income
  - ❑ Disclosure rules for company
    - ❑ Financial statements
    - ❑ Risks, use of proceeds, payment to Portal, ownership structure, etc.

# Changing the Law

- ❑ Very limited transfer of shares for a year
- ❑ Can't raise funds for:
  - ❑ Foreign companies
  - ❑ Companies already public under 1934 Securities Act
  - ❑ Investment companies
  - ❑ Disqualified issuers and portals

# University Financing

- ❑ Most university assistance to spin-outs is in-kind
  - ❑ Business plan development
  - ❑ Management team recruitment
  - ❑ Incubation
  - ❑ Pre-seed grant funding
- ❑ Some universities have their own funds
  - ❑ Part of endowment
  - ❑ Alumni
  - ❑ Philanthropic
- ❑ Primary need for institutional funding is for Seed Round
  - ❑ Professional investors for Series A pretty well distributed these days

## **Institutional Investors – Venture Capital**

# Accelerators

- ❑ Already discussed in Lean Start-up Model Topic
- ❑ Y Combinator has partnered with VC's
  - ❑ Andreessen Horowitz
  - ❑ Yuri Milner
  - ❑ General Catalyst
  - ❑ Maverick Capital
- ❑ Invest \$80,000 in each company that graduates
  - ❑ Convertible note
  - ❑ Down from \$150,000

# Venture Capital

- ❑ Professionally managed pools of money contributed by Limited Partners:
  - ❑ University Endowments
  - ❑ Pension Funds
  - ❑ Insurance companies
  - ❑ Companies
  - ❑ Very High Net Worth Individuals
- ❑ Managed by General Partners
  - ❑ Generally, industry veterans
- ❑ Funds typically have a 10 year lifetime
  - ❑ LP's money drawn down in tranches
  - ❑ Typically fully committed by year 3 or 4, fully invested by year 5 or 6

# Venture Capital

- ❑ Aim for 40% annual ROI
  - ❑ Will allow them to raise their next fund
- ❑ Requires that every investment have the potential to return 10x
  - ❑ Expectation is that if say 10 investments:
    - ❑ 2 home runs
    - ❑ 4 ok – money back or 2-3 x
    - ❑ 4 write-offs
- ❑ This will allow them to raise the next fund
- ❑ General Partners receive 20% of profits after return of LP investment
  - ❑ Plus 2.5% of fund to operate annually
  - ❑ Over 10 years, means 25% of fund goes for operations

# Understand the Motivational Factors of VC's

- ❑ Make Money for their Limited Partners; themselves
- ❑ Must use highest quality professional managers;
  - ❑ **Not committed to the Founders**
- ❑ When the going gets tough, they become Vulture Capitalists
- ❑ Management and early investors get eaten alive



## **Corporate Partnerships**

# Corporate Partnerships

- ❑ Usually lengthy to negotiate
- ❑ Must be aligned with Mission
- ❑ Source of scientific validation
- ❑ Financing vs. creating competition
- ❑ Many new corporate VC funds – a hybrid approach

# Negotiating Corporate Partnerships

## ☐ Tangible Results

- ☐ License Fee
- ☐ Royalties
- ☐ Milestone Payments
- ☐ Stock Purchase
- ☐ FTE Payments

## ☐ Intangible Results

- ☐ Technology Rights
  - ☐ IP
  - ☐ Know-how
- ☐ Underutilized Assets
- ☐ Buildings
- ☐ Equipment
- ☐ Public Relations

# Building Value Through Corporate Partnerships

## Value is created through

- ❑ Credibility
- ❑ Transaction cash
- ❑ On-going royalties
- ❑ Equity purchase
  - ❑ What is the stock of any company worth?
  - ❑ Milestone opportunities

## Financing Growth Stages

Idea + Opportunity + Time = Concept

Concept + Networking + \$ = Team

Team + Research + \$ = B-Plan

B-Plan + Organization + \$\$ = Start-up

Start-Up + Dev. + Market + \$\$ = Product

Product + Customers + \$\$ = Sales

Sales + Marketing + \$\$\$ = Revenue

Revenue + Market + \$\$\$ = Exports

Exports + Partners + \$\$\$ = Global Presence

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# The Ultimate Strategic Issue

- ❑ What is the Exit?

# Exit Choices

- ❑ IPO
- ❑ Sell the business
- ❑ Pay off or buy out investors

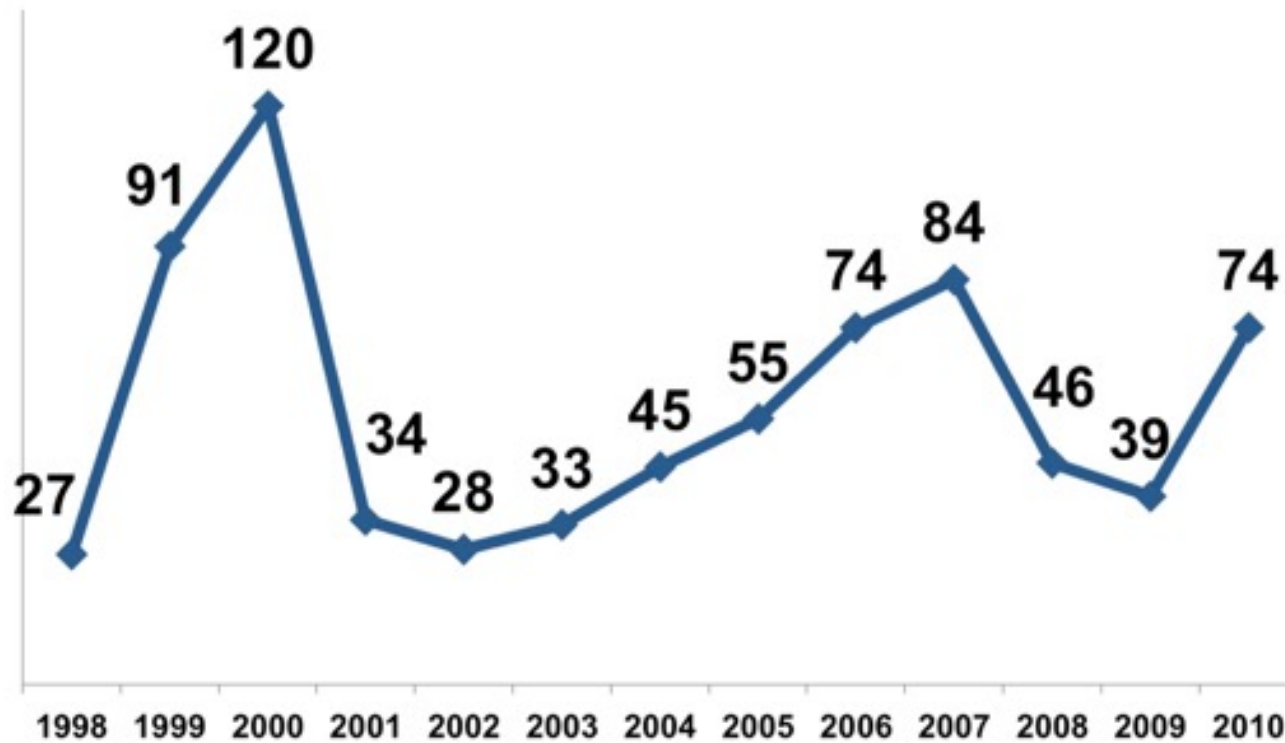
# IPO

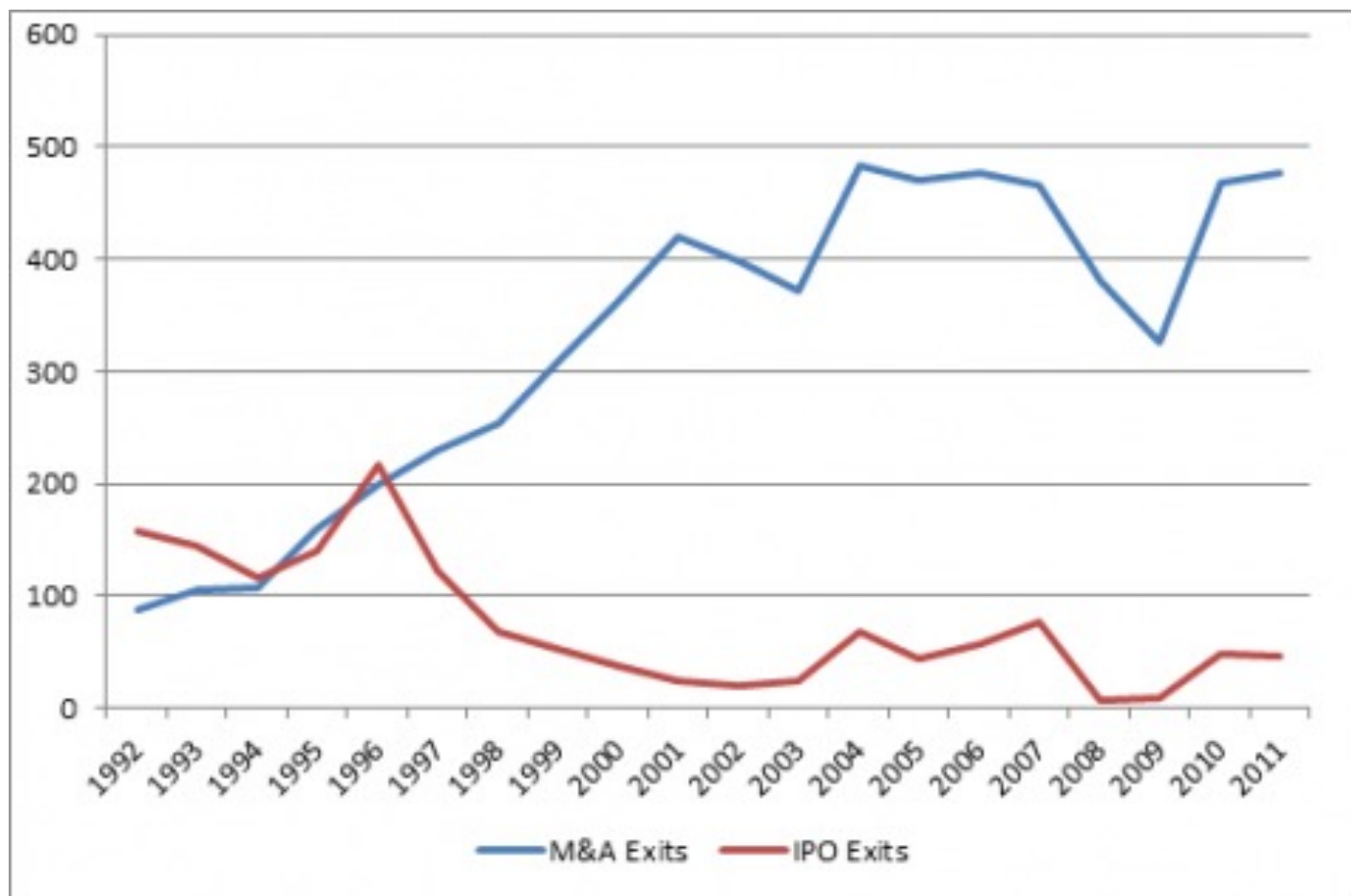
- ❑ Is your business IPOable?
  - ❑ Size of market, growth rate of revenues
- ❑ What are the comps?
  - ❑ At what point did they go Public?
- ❑ Did you talk to an investment banker?
- ❑ Did you talk to the CEO of a company similar to yours that has gone public?



# The Exit

There Aren't Many Exits > \$100 million





# Selling the business – what is it worth?

- ❑ Company is worth what someone will pay for it.
  - ❑ Not what you think its worth!
- ❑ Buyers have different reasons to buy a smaller company
  - ❑ Protect a franchise
  - ❑ Extend a franchise
  - ❑ Create a franchise

Profile and track the buyers in your space

# How is Value Calculated?

- ❑ Each industry has its own value metrics
  - ❑ Often different verticals within an industry
  - ❑ Build a value chain
    - ❑ Mapping different sale points to stage of development of product or company
    - ❑ What are the metrics or rules of thumb for computing NPV in your industry

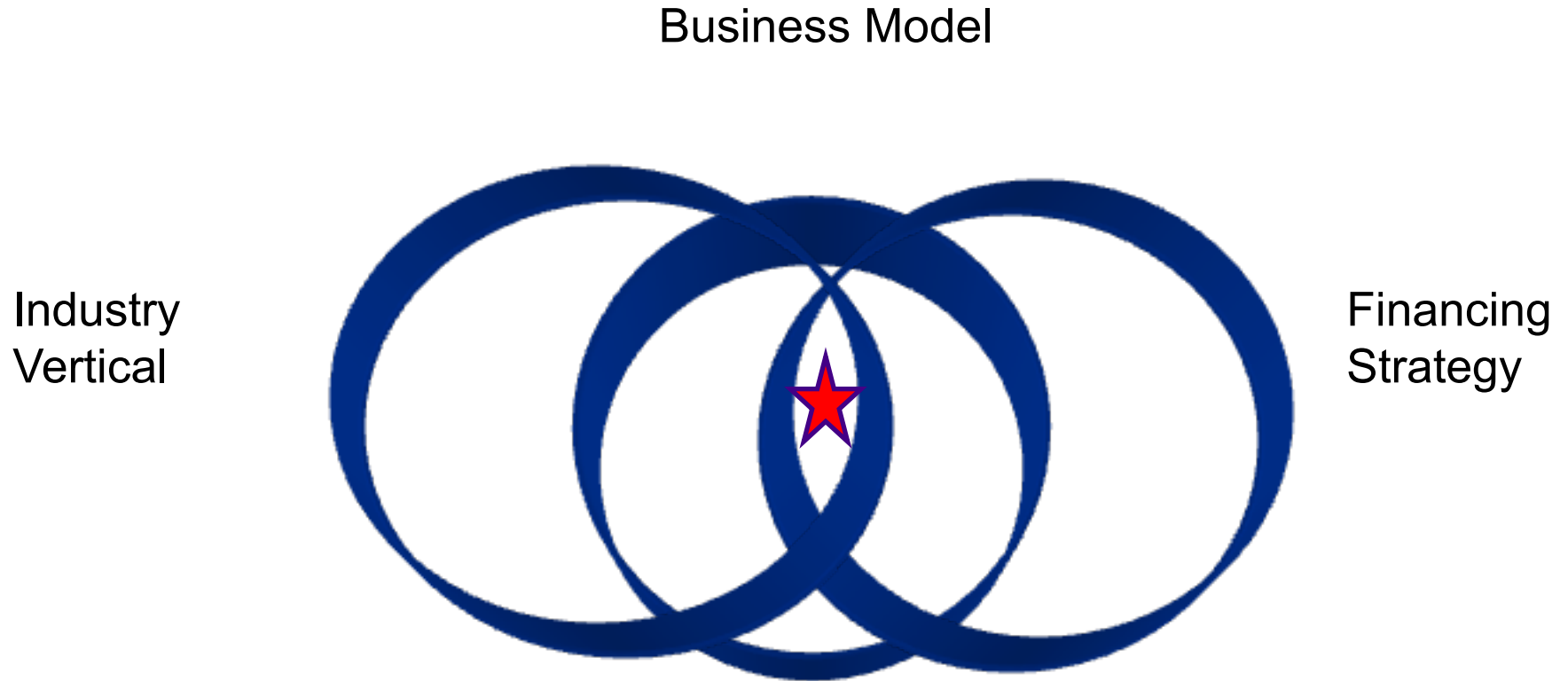
# How do you know what to sell company for?

- ❑ Two main bases for high tech companies
- ❑ If public, market cap plus a premium

**X**

- ❑ If private --  
i.e., X times its sales
- ❑ Every industry has its “X”
- ❑ Find three or four recent transactions and calculate
- ❑ Pharmaceuticals:
  - ❑  $X=5$
  - ❑ E.g., Genzyme’s sales were \$4 billion
    - ❑ Sanofi paid \$20 billion

# The Right Strategy



# Many Paths to Success



Many routes to the top of the mountain  
Many mountains to climb  
Many paths to success