

VC 101

The Quick & Dirty Guide to Venture Capital



Where scientists and entrepreneurs meet to commercialize clean technologies

VC 101

- ❑ VC 101 is a short course designed to introduce the basic principles of how the venture capital market operates in layman's terms.
- ❑ Also includes primer breaking out Cleantech segmentation in venture

VC 101

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Concepts

- Decision AND project mgmt process in venture built for speed not risk management
- Economic Stage Gate and Massively Parallel R&D
- Financial and fundraising cycles drive everything
- Does not integrate well with corporate processes
- “Weird” portfolio management
- Large diversified market
- Cleantech significant part

What is Venture Capital?

Venture Capital (noun) Defn –

- “Serial pooling of overlapping shared equity risk capital in 2 year tranches to enable rapid development of massively parallel R&D and technology commercialization”

AKA

- Elephant hunting with a shotgun and 3 shells
- If not a early stage 10-bagger don't call me
- Search for “gazelles”

□ The Generic Investment Criteria

- \$1 Bil + and rapidly growing market
- Hella cool patentable widget inside
- “Fundable” team
- Exitable
- High margin business

□ Due Diligence

- Team, source, external validation of demand & market size critical
- Key technology & engineering ?s often left for later rounds
 - Though not every VC admits this

What It's Not

- Stage Gate
- Risk management
- Portfolio management
 - There are no low risk deals in a venture fund
 - Given distribution of failure Every deal in the fund must be a 10 bagger
 - Each fund takes a particular type of risk, no diversification inside a fund
- “That’s not a venturable bet”
 - Even good businesses
 - Even good IRRs
- Why?
 - Too much capital needed for too little upside
 - Not high growth enough
 - Not able to sustain enough capital to move the needle
 - Low exit multiple business

The Life of a Great Deal

- Angel – \$1 mm for 20%
 - yea, I've got this idea see . .
- Series A – \$5 mm for 50%
 - no customers, no product, but my patents are filed and the 1st experiment worked!
- Series B - \$10 mm for 30%
 - I met a customer, the first check cleared, but I just need more to get them over the line
- Series C - \$20 mm for 20%
 - My customers like it, but I'm still burning big and need cash to scale
- Series D – \$40 mm for 15%
 - damn customers aren't behaving like I told ya, but I can see a breakeven
- Series E – \$70 mm for 10%
 - Exit in site, just need the cash to get there
- Series F – \$50 mm for 30%
 - LOL exit in site huh? Somebody ate it
- IPO – thank god we raised \$150 mm for 20% but we still can't exit
 - However, average venture backed IPO is \$150 mm, average M&A c. \$50-\$150 mm

Anatomy of a Series A Deal

□ Structure

- \$2-8 mm in Convertible Preferred Stock with a bajillion strings
- Funding 2 years of burn to either a technical proof point, key hires, or external validation
- 1-3 investors
- For 33-60% of the company
- 2+ of 4 board seats
- 5-10 employees
- Virgin ESOP of 20% of company post money
 - 4 yr/1 yr vesting
- Delaware C Corp

□ Presupposes

- Some angel / R&D / founders equity in <\$2 mm
- 2-3 founders, some with prior startup experience
- Part of management team built
- No revenues
- Some technical proof and/or a customer or partner contingent validation
- No prior professional investors
- Clean cap table, all founders in common

Valuation Techniques

- DCF worthless
- Earnings valuation multiples worthless until IPO
- WACC
 - Think 60-70% effective at Series A
 - Maybe 20-30% by Series D/E
 - Except no leverage or taxes to care about
- Pre IPO
 - IPO discount
- Late Stage
 - Revenue multiples
- Early stage
 - Supply /Demand Economics for Capital
 - Multiple of Contributed Capital

VC Math

- Forget everything you ever learned
 - $\text{Pre-money Valuation} + \text{Investment \$} = \text{Post Money Valuation}$
 - $\text{Dilution} = \text{Investment \$} / \text{Post Money}$
 - All deals at each stage basically valued the same
- Defns
 - Pre-money is the equity value of the Company, including its ESOP plan, prior to this round
 - Maximum Possible Post Money Valuation = MPOV
 - Expected Exit Value for Company = EEV
- All based on rule of thumb cash on cash multipliers by stage and time to exit
 - E.g. 4x total return on my investment aka “4 Banger”
 - Effectively a Required Returns Analysis
- $\text{EEV} / \text{My Desired Return Multiple (e.g.4x)} = \text{MPOV}$
 - $\text{MPOV} - \text{Cash Needed for 2 years} = \text{Max Pre-Money for this round}$
 - $\text{Divide Max Pre-Money} / 2 = \text{first term sheet offer}$

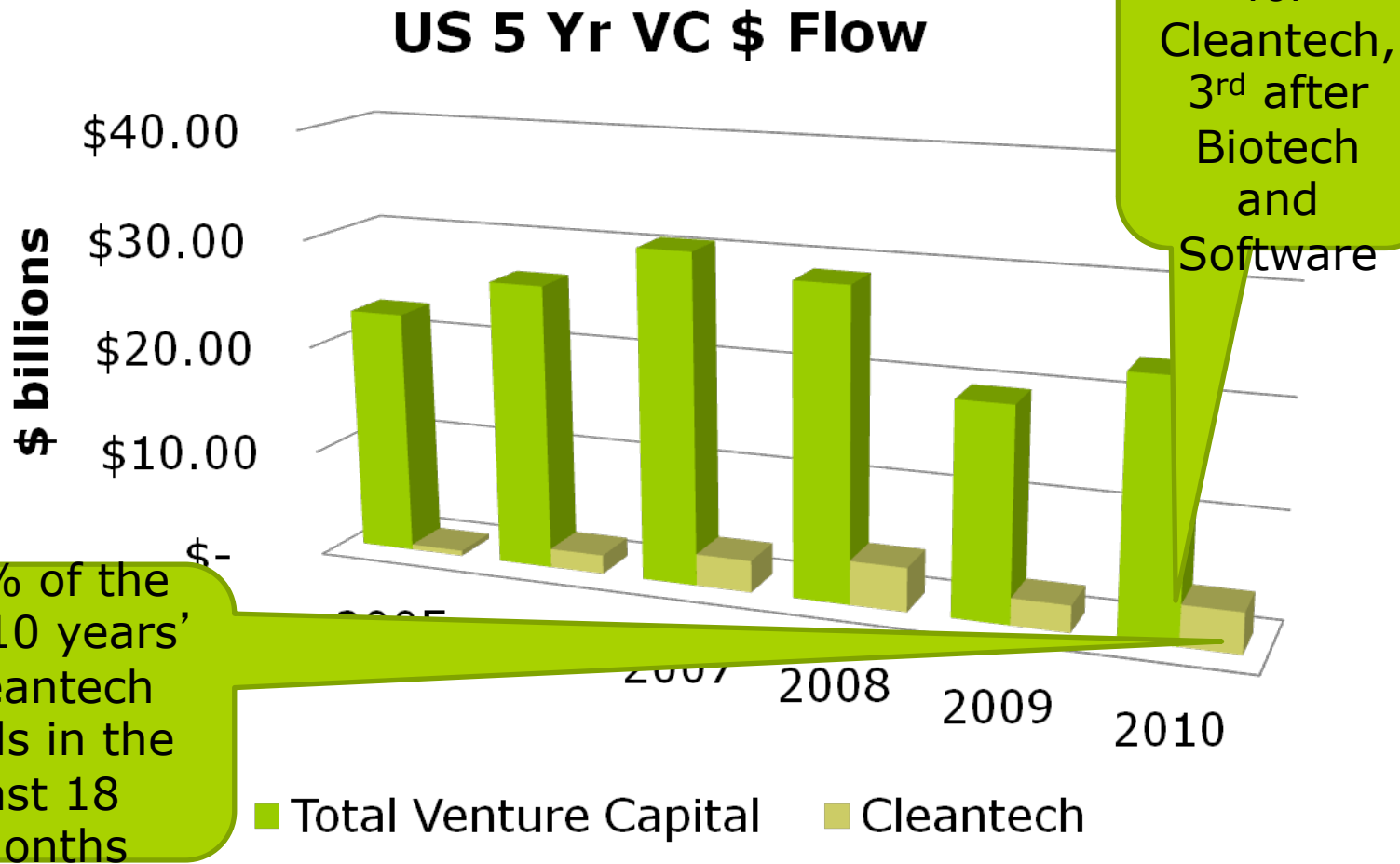
VC Math Part Two

- The Required Returns Analysis for this round
 - Constrained by:
 - RRA for aggregate capital needed to exit
 - RRA for next round investor
 - Relative valuations of similar round deals
 - Quality of the other investors
 - Discount for larger \$ risk
 - Discount for longer exit time
 - Fund dilution targets
 - E.g. 40% stake at round one, no less than 10% stake at exit
- = the Valuation
- And yes, that's the extent of the valuation analysis

Financial Analysis

- ❑ Short answer – none
- ❑ 5 Year P&L/cashflow model, focus on the first 2 years
- ❑ Manage to cash burn rate, milestones, and external validation
 - 2 years burn tends to be the max funded amount per round
- ❑ NPV and IRR are worthless
 - Too sensitive to the variables to be useful
 - Yea your “hockey stick” model looks great, but so does EVERY model for any company we actually fund!
- ❑ The “Red Shift”
 - All your numbers will lag by 2 years, and capital needs off by factor to order of magnitude
- ❑ Essentially use a standard expected long term cashflow model, adjusted by company near term burn, + simple additive FV capital requirements and qualitative stage
 - Instead of company or project specific NPV/IRR

How Big is the Venture Market?



Source NVCA/PWC

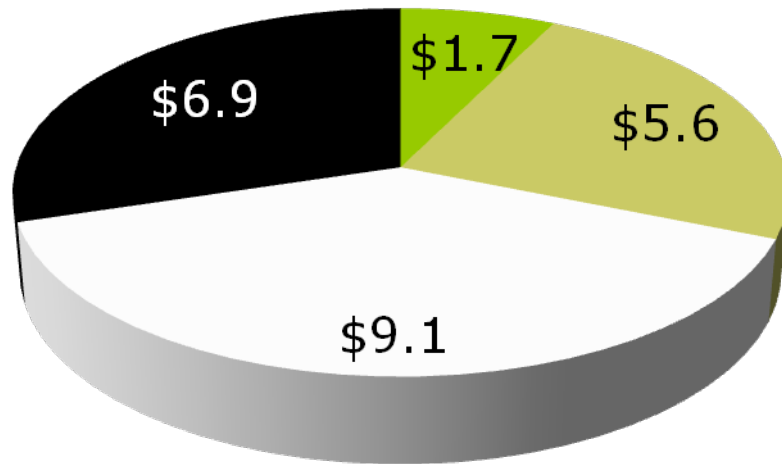
Top 10 VC Deals 2010

Name	Business	Amt
Better Place	EV Fleets	\$350 MM
Twitter	Do I need to explain?	\$200 MM
Brightsource Energy	Solar Thermal	\$150 MM
Abound Solar	CdTe Solar Thin Film	\$111 MM
Trilliant	AMI / Smart meters	\$106 MM
Elevance Renewable Sciences	Chemical biorefining	\$100 MM
HighTower	Financial Services	\$100 MM
Casa Systems	Networking	\$96 MM
Pierpont Securities	Financial Services	\$85 MM
Fisker Automotive	Electric Vehicles	\$78 MM

Source NCVA

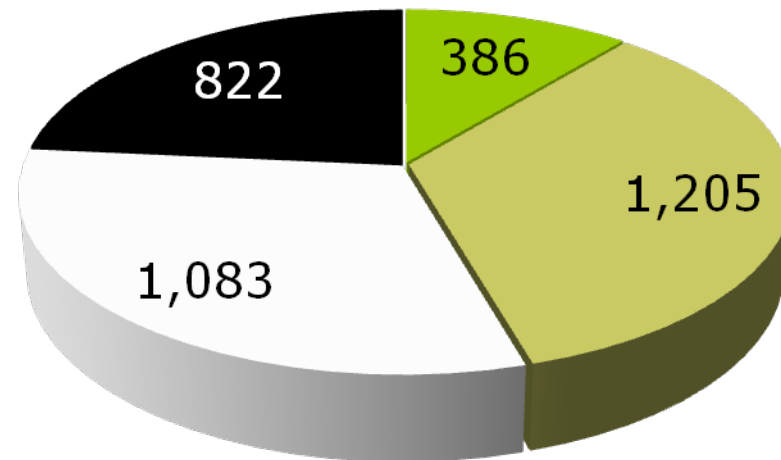
Where Does Venture Capital Go?

2010 \$ Bil by Stage



■ Seed ■ Early Stage
□ Expansion ■ Later Stage

2010 # of Deals by Stage



■ Seed ■ Early Stage
□ Expansion ■ Later Stage

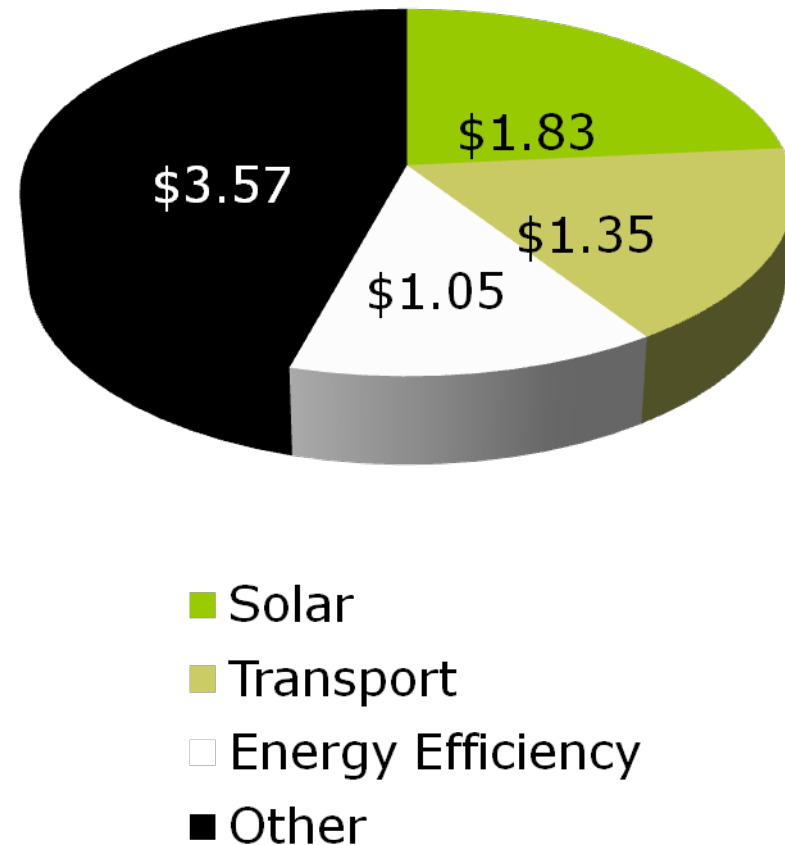
NCVA US data

The Cleantech Waves

- Inspired by Enron
 - 1998-2001
- The Valley of Death
 - 2002-2005
- The Green Wave meets the Perfect Storm
 - 2005-2008
- Hell Hath No Fury
 - 2009-2011

2010 in Cleantech

- \$7.8 Bil in Cleantech, near record year
 - 715 deals, avg \$10 mm each
 - 68% North America
- 93 IPOs for \$16 Bil
 - 68% in China
 - Largest (22%) was ENI's renewables business
- 715 M&A, 203 report values



Source Cleantech Group, global numbers, note much broader inclusion than NCVA

Fund Economics 101

- 10 year life
 - 3-5 to invest/5-8 to harvest
- \$50 mm - \$1 B in size
 - \$100-\$300 mm typical
- 10-15 investments
- 3-6 partners
 - 1-3x that in staff
- Spend ratio 1:3:1
 - Initial investment : follow-on reserve : fees
- GP/LP
 - GP is the VC
 - LP are rich guys, pension funds, corporates
- GP gets “2 and 20”
 - 2%/year mgmt fee + 20% of profits (the “carry”) after capital returned
- GP raise new fund every 3-4 years
 - Drives the firm
- The J Curve
- Serious agency problem

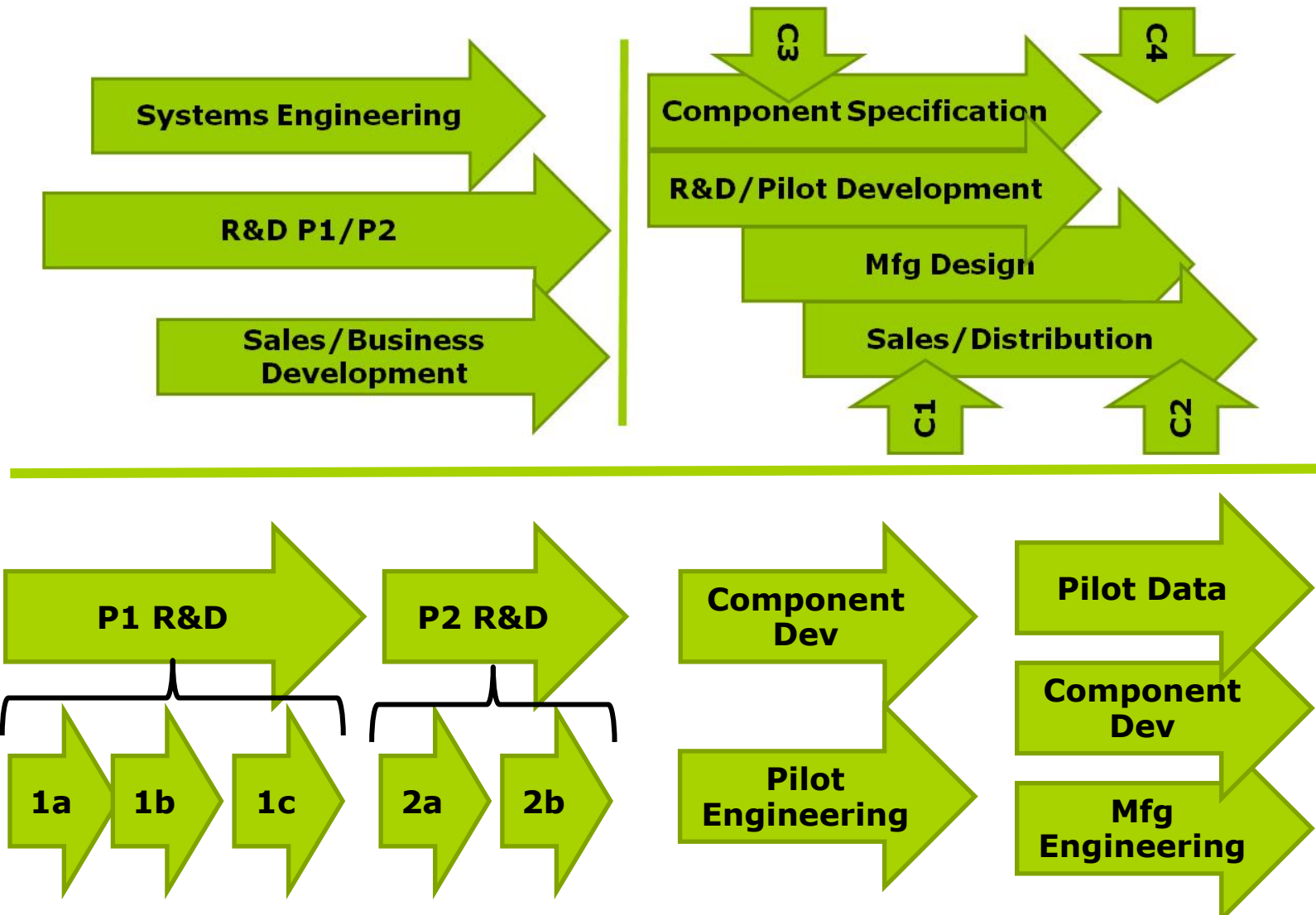
Fund Decision Making

- Working partners generally comprise the Investment committee
 - Decisions requiring capital as a committee of the whole on either vote or consensus
- Each partner pitches, defends, sits on board of and runs own deals
 - Serves as governance on colleagues' deals
 - Written investment memo based on the business plan generally prepared by junior staff and partner for IC pitch
 - Rare to expose startup to IC
 - Some partners are more equal than others
- The org chart ranking
 - Partner/GP/Managing Member
 - Principal/MD/VP/Director
 - Associate/Analyst
 - Venture Partner/EIR
- Only partners really run deals
 - Associate/Analyst = junior
 - Venture partner or EIR = senior advisor who is lower than junior
 - Principal, Director, VP means may not be junior
 - Some firms call everyone partner just to confuse startups

Anatomy of a Term Sheet

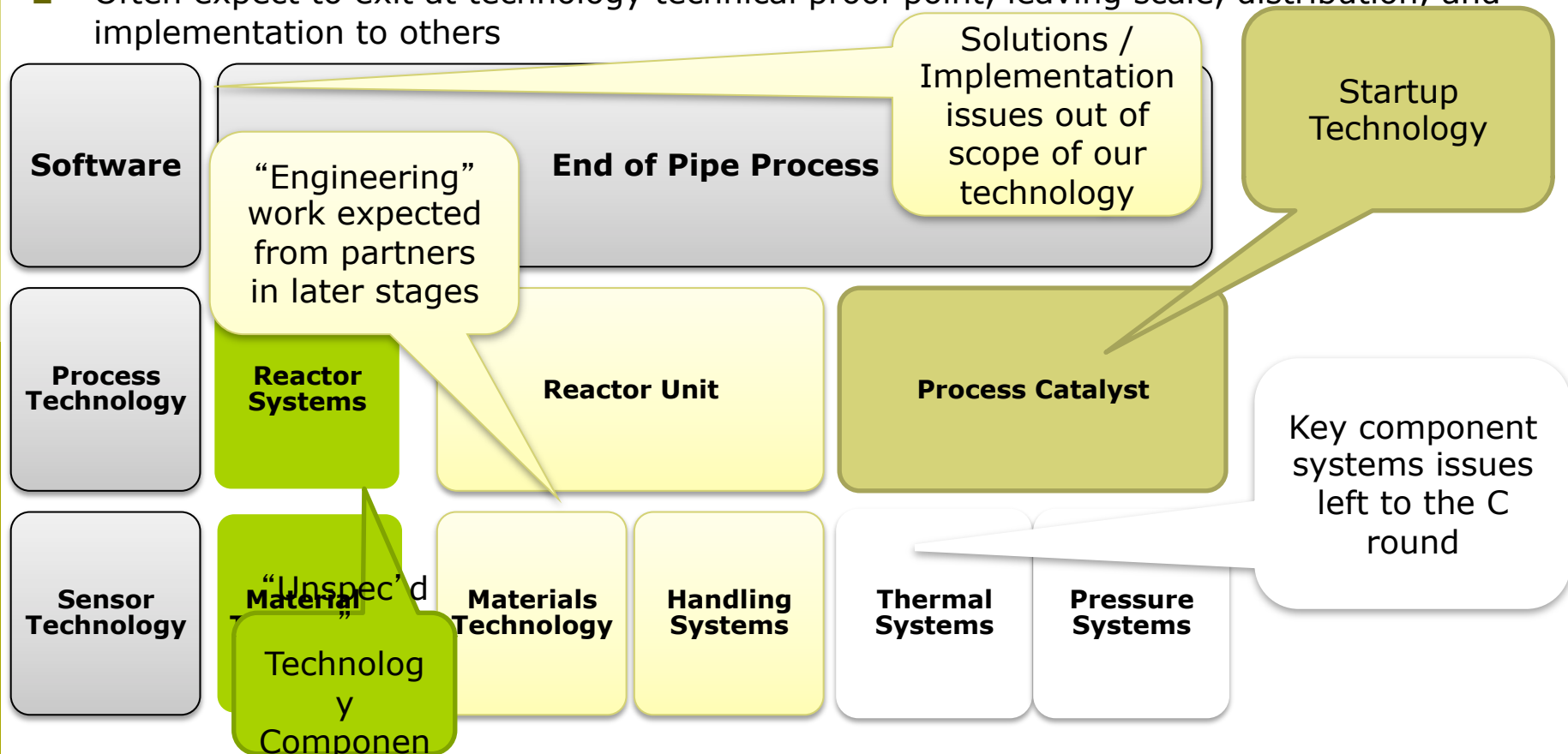
- Security
- Investors
- Amounts/Price
- Capitalization table
- Liquidation preference
- Dividends
- Voting rights
- Anti-dilution rights
- Protective Covenants
- Board
- ESOP
- Conversion rights
- Registration rights
- Pre-emptive rights
- ROFR/Co-sale rights
- Redemption Rights
- Lockup
- Drag Along rights
- Conditions to closing
- Expenses
- NDA & No-Shop

Massively Parallel R&D/ Commercialization vs Phase Gate Style



Indicative Systems Problem Technology “Stack”

- ❑ Venture backed startups view focus as key, and tend to compete against a wave of startups in their component, not the system
- ❑ Assume downstream scale issues as solvable “engineering” not technology
- ❑ Expect key components and materials to be progressing at similar rate to theirs
- ❑ Often expect to exit at technology technical proof point, leaving scale, distribution, and implementation to others



Conclusion / Q&A

- The venture process is built for:
 - Extreme early triage by proxy
 - Economic stage gate
 - Speed to market
 - Rapid and parallel bet taking
 - “High beta” from the get go
 - Accelerated market development



VC 101 Library – NVCA Docs
