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"Financial Modeling for Startups"

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Agenda

- **Objective of the discussion**
  - Significance of Financial Modeling
  - An Approach to Financial Modeling
  - Income Statements 101
  - Cash Flows 101
  - Case Studies

    Case Study A (Pre-Investment Analysis)

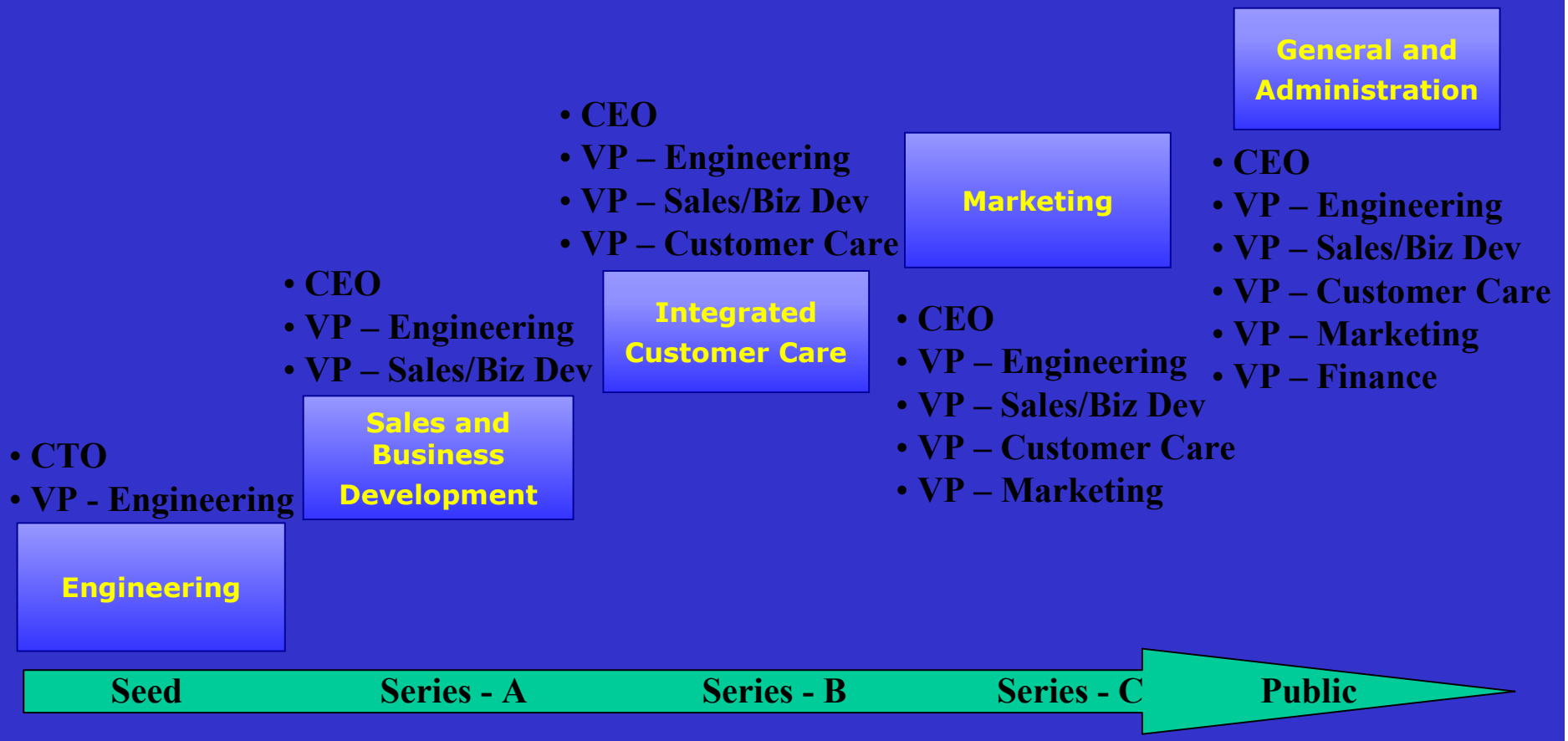
Why should an entrepreneurs focus on Financial Modeling?

- Organizational and Business Process Design
- Dynamics of Organizational Emphasis
- Business Assumptions and Requirements Quantification
- Metrics Definition and Variance Analysis
- Goal Congruence and Communications Tool

Organizational and Business Process Design

Engineering	• Key business activities: Product development, emerging technology research, professional services support (functional analysis and user interface) • Key Roles: Process Lead – VP Engineering. Lead assists – Directors for Emerging Technologies, Platforms, Integration and Development
Sales and Business Development	• Key business activities: Direct Sales, Indirect sales through alliances and partnerships with Independent Software Vendors and System Integrators • Key Roles: Process Lead – VP Sales / Business Development. Lead assists – Regional Sales Directors or Managers, Business Development Directors (Device/Carriers, System Integrators, ISVs, Technology)
Marketing	• Key business activities: Marketing Communications, Product Marketing, Investor Relations, Public Relations, Market Research • Key Roles: Process Lead – VP Marketing. Lead assists – Directors for Marketing Communications, Product Marketing, Investor Relations, Public Relations
Integrated Customer Care	• Key business activities: Professional Services, Software Quality Assurance, Training and Customer Support • Key Roles: Process Lead – VP Integrated Customer Care. Lead assists – Directors for Professional Services, Software Quality Assurance, Training and Customer Support
General and Administration	• Key business activities: Corporate Strategy, Finance, Operations – Human Resources, Legal, and IT • Key Roles: Process Leads – Corporate Strategy-CEO, Operations-COO, Finance-CFO. Lead assists – VP Human Resources, Directors for IT, and Legal

Dynamics of Organizational Emphasis



Requirements Quantification – Matching Uses of Cash Flows with Sources of Cash Flows

Uses of Cash Flows

Cash Outflow Analysis		2000		2001					2002				
		Q4	2000	Q1	Q2	Q3	Q4	2001	Q1	Q2	Q3	Q4	2002
Cash flows from Operations		(2,349)	**(2,349)**	(4,687)	(7,526)	(7,619)	(6,780)	**(26,611)**	(7,535)	(6,984)	(4,803)	(3,085)	**(22,406)**
Cash flows from Investing		(123)	**(123)**	(604)	(716)	(496)	(348)	**(2,164)**	(236)	(124)	(40)	(40)	**(440)**
Cash flows from Ops & Inv		(2,472)	**(2,472)**	(5,291)	(8,242)	(8,115)	(7,128)	**(28,775)**	(7,771)	(7,108)	(4,843)	(3,125)	**(22,846)**
Cumlative Cash Outflows		(2,472)	**(2,472)**	(7,762)	(16,004)	(24,119)	(31,247)	**(31,247)**	(39,017)	(46,125)	(50,968)	(54,093)	**(54,093)**

Sources of Cash Flows

Cash Inflow Analysis		2000		2001					2002				
		Q4	2000	Q1	Q2	Q3	Q4	2001	Q1	Q2	Q3	Q4	2002
Preferred Stock		3,500	**3,500**	5,200	7,300	6,700	4,800	**24,000**	4,200	2,500	0	0	**6,700**
Par Value of Common Stock		0	**0**	0	0	0	0	**0**	0	0	0	0	**0**
Additional Paid in Capital		0	**0**	0	0	0	0	**0**	0	0	0	0	**0**
Cash Flow from Financing		3,500	**3,500**	5,200	7,300	6,700	4,800	**24,000**	4,200	2,500	0	0	**6,700**
Cumulative Cash Inflows		$3,500	**$3,500**	$8,700	$16,000	$22,700	$27,500	**$27,500**	$31,700	$34,200	$34,200	$34,200	**$34,200**

Metrics Definition – To be carried out for all the defined scenarios, typically for third year of operations

Direct Outputs

- Revenues ($ and CAGR)
- Gross Income (% of Revenue)
- Operating Income (% of Revenue)
- Peak Negative Cash Flows ($)

Derived Outputs

Employee Productivity
- Revenue per Employee
- Revenue per Sales Employee
- Income per Employee

Organizational Productivity
- Product Development / Revenue (%)
- Sales and Marketing / Revenue (%)

Business Assumptions

- Sales Cycle
- Pricing Methodology
- Sales Projections and Revenue Mix
- Product Development Roadmap

Breakeven Analysis
- Quarters to breakeven
- Cumulative burn
- Scenario based cash requirements

Business Assumptions Quantification

Pricing and Projections

Customers and License Revenue Summary						
	2001		2002		2003	
	Pricing	Customers	Pricing	Customers	Pricing	Customers
Small	$ 250	7	300	15	350	50
Medium	$ 500	3	500	18	600	60
Large	$ 1,000	0	1000	4	1200	15
Strategic	$ 250	3	500	2	750	6
Total*		13		39		131

Pipeline and Sales Cycle

Asssumptions		
Average Price ($000s)	$100	$150
Number of prospects / Direct Sales Rep	7	10
Number of prospects / Indirect Sales Rep	3	4
Aveage Sales Cycle (months)	3	3
% of prospects rolling over	30%	30%
Conversion of prospects to clients (direct)	20%	20%
Coversion of prospects to clients (indirect)	33%	33%
Operating Expenses Increase	60%	40%

Product Development

Product Development Assumptions			
	Alpha	Beta	General Availability
Number of Quarters	2	5	7
Development Staff	12	20	30
Fully Loaded Cost ($000s)	$1m	$3m	$6m

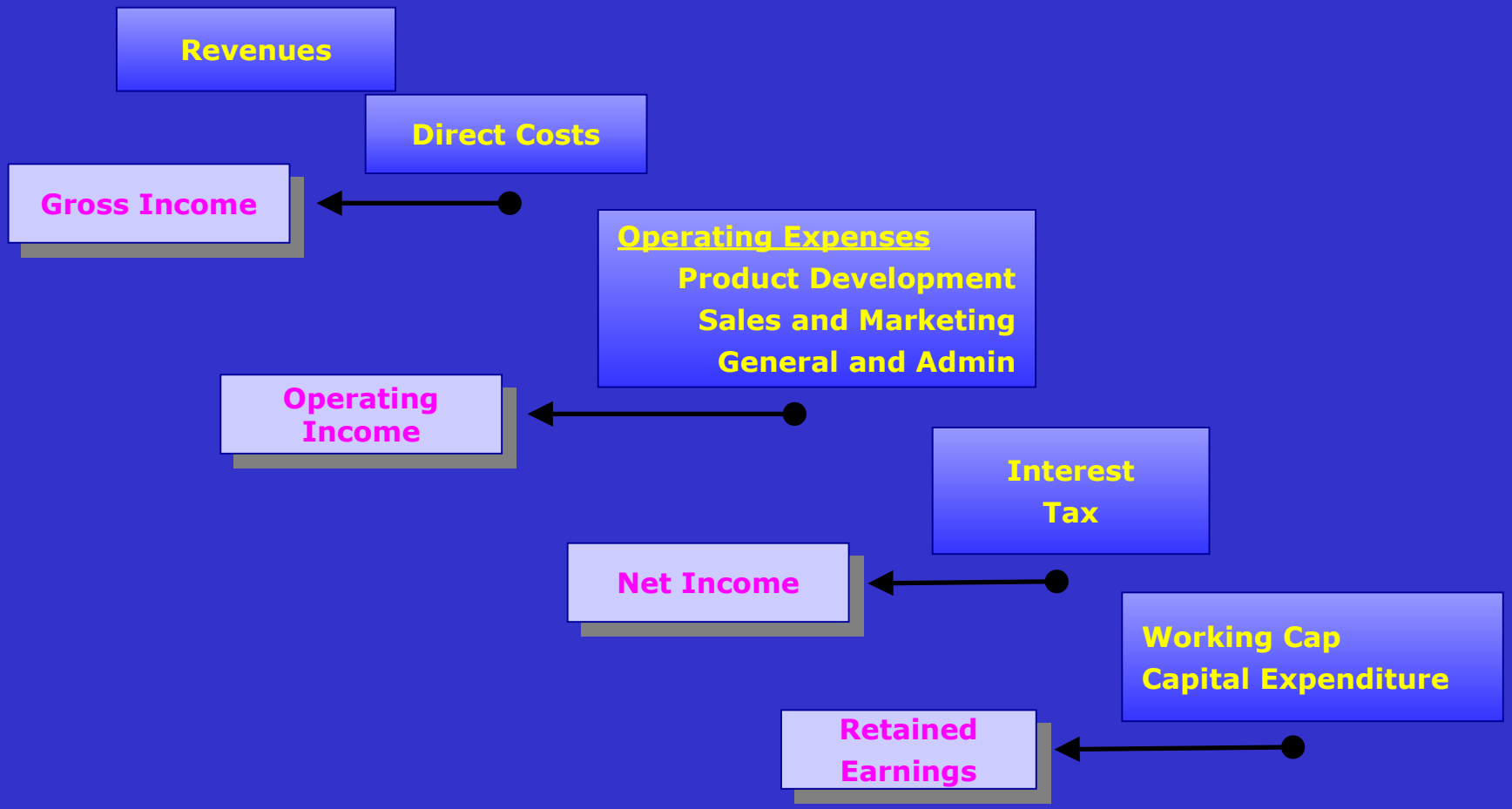
Goal Congruence and Communications Tool

- **Growth versus value maximization:**
  - What is the cost of growth? (Metric: Revenues minus sum of product development and sales and marketing expenses)
  - What is the optimal growth strategy? (Hyper growth (200% CAGR over 3 years) with $100m operating losses or Contained growth (100% CAGR over 3 years) with $30-$40m operating losses)
  - Which business processes should be in-house and which processes should be outsourced?

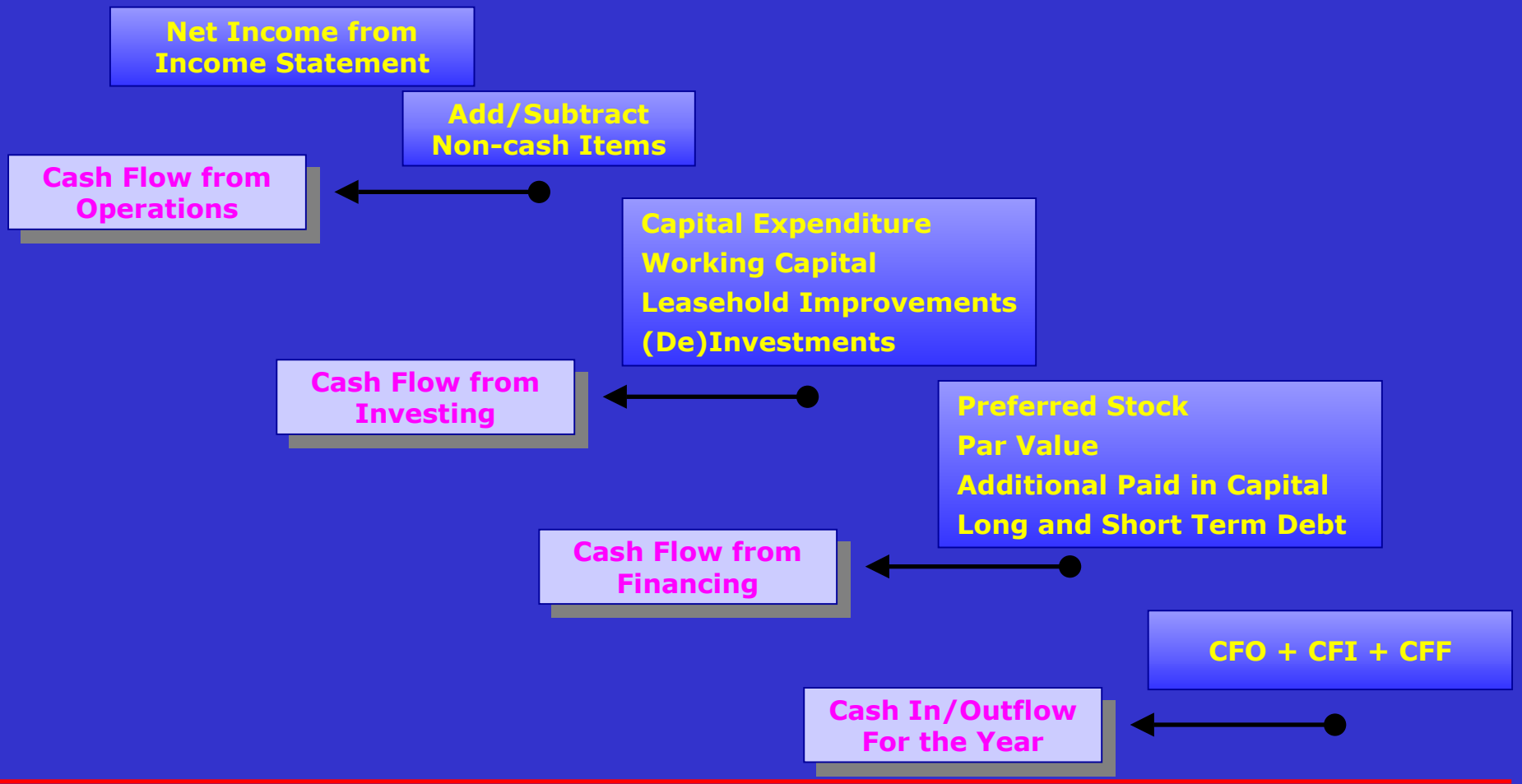
- **Organization goal congruence:**
  - What are the two or three key metrics that the company will govern itself?
  - Synchronization between Sales, Marketing, Product Development and Customer Care departments

- **Constantly changing markets:**
  - Operating plans and financial plans should be 3 Quarter moving plans
  - Need of a strategy team to be accountable for the adaptability

Income Statement Demystified



Cash Flows Demystified



Case Study – A

Pre-Investment Analysis

Entrepreneur walked in the following Valuation Analysis

	2002	2003	2004	2005	2006
Operating cash flow	(12,088,419)	(13,288,859)	1,259,472	27,977,148	74,144,527
Capital expenditures	(1,342,100)	(843,570)	(2,282,739)	(5,191,546)	(3,528,695)
Free cash flow	**(13,430,519)**	**(14,132,429)**	**(1,023,266)**	**22,785,602**	**70,615,832**

Risk Premium	NPV
30%	7,837,461
40%	1,884,633
50%	(1,737,885)

Terminal Disc Rate	Cash flow growth after year 5		
	11%	13%	15%
25%	7.9	**9.4**	11.5
30%	5.8	6.6	7.7
40%	**3.8**	**4.2**	**4.6**
50%	2.8	3.1	3.3

TERMINAL VALUE	Multiple of Terminal Value at 40% terminal discount rate			"Public Multiple" at 25% terminal discount rate		
Risk Premium	3.8	4.2	4.6		9.4	
30%	72,796,467	79,597,605	87,486,925		179,094,611	
40%	50,255,880	54,951,124	60,397,607		123,640,030	
50%	35,593,506	38,918,892	42,776,340		87,567,507	

Risk Premium	Value
30%	**80,633,928**
40%	**52,140,513**
50%	**33,855,621**

Why was the Analysis Irrelevant

- **Incorrect Valuation Methodology**
  - Projecting Revenues 5 years out is a difficult proposition
  - Discount Rates basic mathematical exercise
- **Irrelevant Comparables**
  - Risk profiles comparison with company in a different stage
  - Lack of market risk indicators (e.g. Beta)
- **Mismatched Investor Expectation**
  - Terminal Value varied from 84% Minimum to 100% Maximum
- **Lack of Value-Additivity**
  - Did not factor either business premiums or risk factors in to valuation analysis

Digging in to the mechanics of the operations…..

	YEARS				
	1	2	3	4	5
	2002	2003	2004	2005	2006
Revenues	207,000	4,911,696	41,991,433	90,171,262	159,196,589
Expenses					
Sales & Consulting	(1,720,625)	(3,158,080)	(12,046,656)	(15,931,247)	(21,708,979)
Operations	(1,299,734)	(2,777,995)	(12,216,748)	(23,965,086)	(40,035,140)
Profit	(2,813,359)	(1,024,379)	17,728,029	50,274,929	97,452,469
Technical Development	(2,966,375)	(5,293,466)	(6,013,039)	(6,244,134)	(6,491,596)
Marketing	(1,199,050)	(1,813,036)	(2,022,357)	(2,261,531)	(2,597,906)
Executive Office	(1,227,450)	(1,990,481)	(2,065,630)	(2,144,584)	(2,227,555)
Internal Information Technology	(2,986,088)	(2,310,344)	(4,447,345)	(8,736,148)	(7,636,659)
Overhead	(896,097)	(857,152)	(1,920,186)	(2,911,385)	(4,354,225)
Total Expenses	(12,295,419)	(18,200,555)	(40,731,961)	(62,194,114)	(85,052,061)
Operating Cash Flow (Loss)	**(12,088,419)**	**(13,288,859)**	**1,259,472**	**27,977,148**	**74,144,527**
Depreciation	(447,367)	(728,557)	(1,489,470)	(2,772,618)	(3,667,660)
Operating Profit (Loss)	(12,535,785)	(14,017,416)	(229,997)	25,204,530	70,476,868
Capital Expenditures	(1,342,100)	(843,570)	(2,282,739)	(5,191,546)	(3,528,695)
Cumulative Capital Expenditures (2001-2005)	(1,342,100)	(2,185,670)	(4,468,409)	(9,659,955)	(13,188,650)
Cumulative Operating Cash Flow (2001-2005)	(12,088,419)	(25,377,278)	(24,117,806)	3,859,342	78,003,870
Net cash flow	(13,430,519)	(27,562,948)	(28,586,214)	(5,800,612)	64,815,220

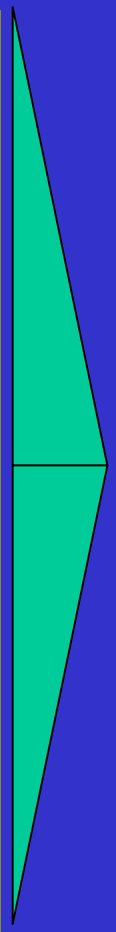
First Level Analysis Clearly Profiled the Investment in High Risk Category, invalidating the entrepreneurs valuations

Direct Indicators

- Cash Burn = $73m
- 4 Year Revenue CAGR = 300%
- Operating Income = 46%
- Number of Employees = 579

Calculated Indicators

- Revenue per Emp. = $260K
- Income per Emp. = $127K
- Rev per Sales Emp. = $3.5m



Well Intended Business Proposition,

but…

- High Funding Risk
- High Management Risk
- High Operational Risk
- Questionable Business Model

Second Level Analysis Indicated Business Proposition was relevant but implementation was flawed…

- **Revenue Mix Less than Optimal**
  - Two Revenue Drivers were placed sequentially
  - Consulting Revenue was a significant revenue driver
- **Strategic Positioning was mis-matched**
  - Value proposition positioned the company as technology providers, but business model projected the company as project implementers
- **Value-Growth Curve was Non-Linear**
  - The company need not have targeted for $150m in revenues, and 579 employees
- **Course of Action…..**
  - SASI worked with the entrepreneur to revamp the business model and used financial model as the tool

Based on the Second Level Analysis SASI worked with the entrepreneur to reduce the identified risks…

- Reduced of Financing risk by capping the capital requirements to a mutually agreed level
- Reduced the Operational risk by making Projects team minimal and treating it as a cost center
- Reduced Business Model risk by changing the revenue driver timing's
- Could not minimize Management Risk, as the company was not yet mature to bring in a world class CEO

As an intermediate Scenario, Revenue ramp was reduced to a third BUT capital requirements was reduced to a fourth…

	YEARS				
	1	2	3	4	5
	2002	2003	2004	2005	2006
Revenues	1,390,000	4,433,640	18,946,253	32,299,094	51,696,601
Expenses					
Sales & Consulting	(795,000)	(1,630,010)	(3,155,314)	(7,097,344)	(10,589,083)
Operations	(604,400)	(1,474,831)	(2,660,507)	(3,647,472)	(4,209,376)
Profit	(9,400)	1,328,799	13,130,431	21,554,278	36,898,142
Technical Development	(1,612,163)	(3,172,265)	(4,319,408)	(6,130,295)	(6,223,612)
Marketing	(532,600)	(1,385,227)	(1,510,043)	(1,694,392)	(1,956,886)
General & Administrative	(992,950)	(1,106,432)	(1,696,436)	(1,764,315)	(1,835,878)
Internal Information Technology	(408,300)	(613,057)	(894,645)	(1,581,299)	(1,612,510)
Overhead	(248,336)	(144,046)	(376,731)	(498,705)	(524,553)
Total Expenses	(5,193,749)	(9,525,867)	(14,613,085)	(22,413,822)	(26,951,898)
Operating Cash Flow (Loss)	**(3,803,749)**	**(5,092,227)**	**4,333,168**	**9,885,272**	**24,744,703**
Depreciation	(191,917)	(552,415)	(806,710)	(1,356,024)	(1,444,646)
Operating Profit (Loss)	(3,995,665)	(5,644,642)	3,526,458	8,529,248	23,300,057
Capital Expenditures	(575,750)	(1,081,495)	(762,886)	(2,223,690)	(1,347,361)
Cumulative Capital Expenditures (2001-2005)	(575,750)	(1,657,245)	(2,420,130)	(4,643,821)	(5,991,182)
Cumulative Operating Cash Flow (2001-2005)	(3,803,749)	(8,895,976)	(4,562,808)	5,322,464	30,067,166
Net cash flow	(4,379,499)	(10,553,220)	(6,982,938)	678,643	24,075,985

Snapshot of an intermediate stage of the financial model based analysis, for optimizing the growth value curve

	2002	2003	2004	2005	2006
Operating cash flow	(3,803,749)	(5,092,227)	4,333,168	9,885,272	24,744,703
Capital expenditures	(575,750)	(1,081,495)	(762,886)	(2,223,690)	(1,347,361)
Free cash flow	(4,379,499)	(6,173,722)	3,570,282	7,661,581	23,397,342

Risk Premium	NPV
30%	3,587,254
40%	1,367,796
50%	(11,151)

	Cash flow growth after year 5		
Terminal Disc Rate	11%	13%	15%
25%	7.9	**9.4**	11.5
30%	5.8	6.6	7.7
40%	**3.8**	**4.2**	**4.6**
50%	2.8	3.1	3.3

TERMINAL VALUE	Multiple of Terminal Value at 40% terminal discount rate			"Public Multiple" at 25% terminal discount rate		
Risk Premium	3.8	4.2	4.6		9.4	
30%	24,119,858	26,373,298	28,987,289		59,339,920	
40%	16,651,422	18,207,110	20,011,709		40,965,998	
50%	11,793,296	12,895,106	14,173,205		29,013,988	

Risk Premium	Value
30%	**27,707,111**
40%	**18,019,218**
50%	**11,782,146**

Risk Premium	Value
30%	**80,633,928**
40%	**52,140,513**
50%	**33,855,621**

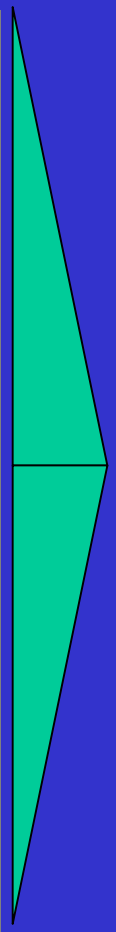
The final numbers indicated minimization of at least two of the three identified risks

Direct Indicators

- Cash Burn = $12m
- 4 Year Revenue CAGR = 125%
- Operating Income = 55%
- Number of Employees = 125

Calculated Indicators

- Revenue per Emp. = $330K
- Income per Emp. = $127K
- Rev per Sales Emp. = $1.3m



Well Intended Business Proposition,

and…

- Low Funding Risk
- Unchanged Management Risk
- Low Operational Risk
- More Tuned Business Model

Thank you for attending our presentation . . . .

- **Ramana Jampala, Principal, SAS Investors**
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