FINANCIAL PROJECTIONS AND VALUATIONS of BUSINESS START-UPS

Converting the Story to Numbers

CHRIS DROUSSIOTIS



www.ProfessorDrou.com

Speaker's Biography

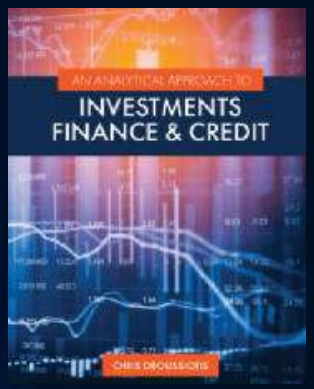


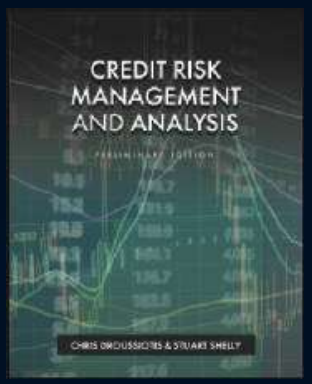
Chris Droussiotis
Senior Managing Partner
Kinisis Venture Limited

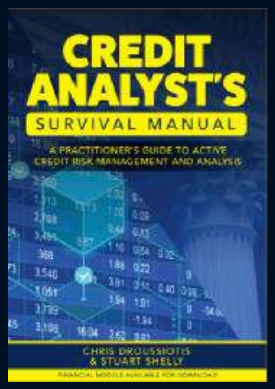
- **35+ Years of Investment Banking Experience:** Extensive expertise in leveraged finance, structured credit, corporate valuation, private equity, and financial risk management.
- **Global Banking Leadership:** Former Managing Director and Head of Strategic Credit Products at SMBC, managing a **$10+ billion credit portfolio**. Previously held senior positions at Bank of America Merrill Lynch, CIBC Oppenheimer, Mizuho, and MUFG.
- **Venture Capital & Valuation:** Senior Managing Partner at **Kinisis Ventures** since 2018 and member of **New York Angels**, specializing in startup investments, financial modeling, valuations, and capital raising.
- **Academic Experience:** Over **20 years of teaching finance** at Columbia University, Fordham University, Seton Hall University, and Baruch College, bridging academic theory with real-world financial applications.
- **Author & Educator:** Author of **three published finance textbooks**, with a fourth, *Angel Investing & Venture Capital Playbook*, forthcoming in Spring 2027.
- **Founder of Drou Academy:** Recently launched a professional finance education platform offering seminars and masterclasses in investment banking, corporate valuation, financial modeling, credit analysis, venture capital and private equity.`

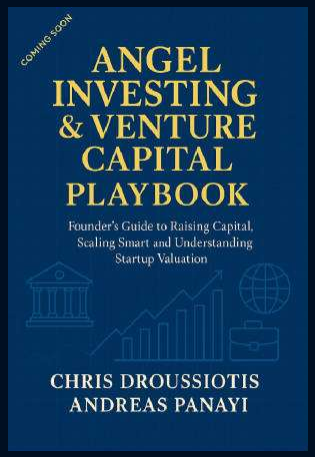
https://www.skool.com/drou-academy

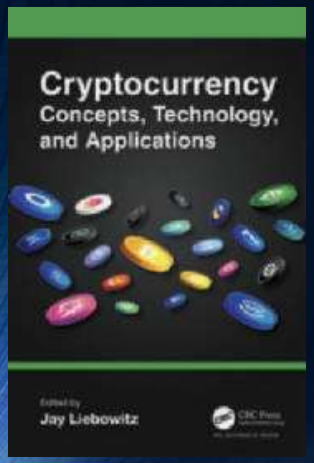
DROU ACADEMY

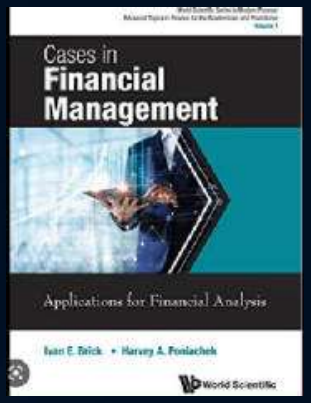

AN ANALYTICAL APPROACH TO
INVESTMENTS
FINANCE & CREDIT
CHRIS DROUSSIOTIS

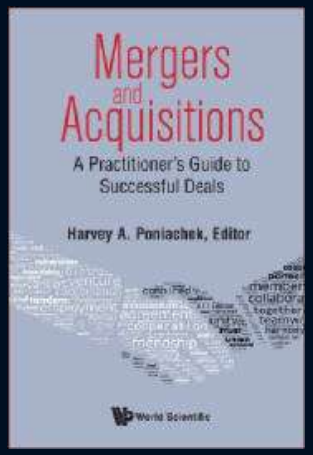

CREDIT RISK
MANAGEMENT
AND ANALYSIS
CHRIS DROUSSIOTIS & STUART SHELLY

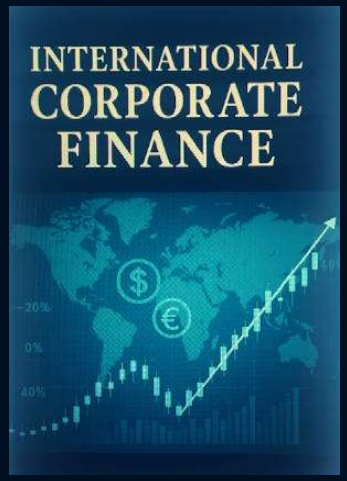

CREDIT
ANALYST'S
SURVIVAL MANUAL
A PRACTITIONER'S GUIDE TO ACTIVE
CREDIT RISK MANAGEMENT AND ANALYSIS
CHRIS DROUSSIOTIS
& STUART SHELLY


COMING SOON
ANGEL
INVESTING
& VENTURE
CAPITAL
PLAYBOOK
Founder's Guide to Raising Capital,
Scaling Smart and Understanding
Startup Valuation
CHRIS DROUSSIOTIS
ANDREAS PANAYI


Cryptocurrency
Concepts, Technology,
and Applications
Jay Liebowitz


Cases in
Financial
Management
Applications for Financial Analysis
Ivan E. Brick • Harvey A. Poniachek
World Scientific


Mergers
and
Acquisitions
A Practitioner's Guide to
Successful Deals
Harvey A. Poniachek, Editor
World Scientific


INTERNATIONAL
CORPORATE
FINANCE



Source of Video:
Castle Placement

AGENDA

1. The Bill Gross Five Critical Factors for Success
2. Business Model
3. Projections - Basic
   a) Metrics Dashboard
   b) Investors Narrative
   c) Other Approach to building Projections
   d) Case Study (SaaS Fintech Start-Up Company)
4. Business Valuations
   a) Start-up Valuation Specific Methods – Connecting the story to Numbers
   b) Return, Risk, Time
   c) Probability Theory 101
   d) Case Study (SaaS Fintech Start-Up Company)
5. Workshop – on Excel

FACTORS THAT START-UPS SUCCEED
(WHAT MATTER THE MOST FOR START-UP according to Bill Gross)



IDEA



MANAGEMENT/TEAM



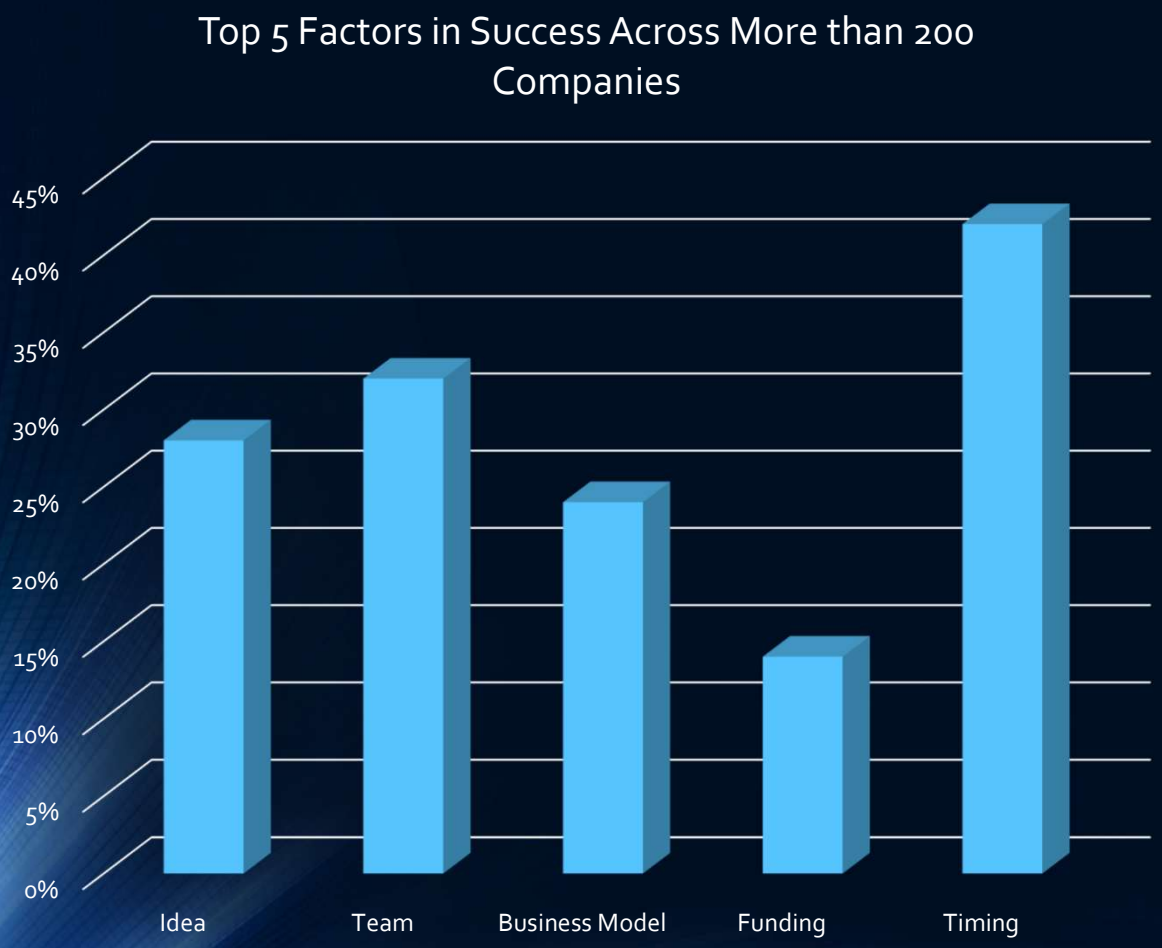
BUSINESS MODEL



FUNDING



TIMING



FACTORS THAT START-UPS SUCCEED

FACTORS THAT START-UPS SUCCEED
(WHAT MATTER THE MOST FOR START-UP according to Bill Gross)



IDEA



MANAGEMENT/TEAM



BUSINESS MODEL



FUNDING



TIMING

FACTORS THAT START-UPS SUCCEED
(WHAT MATTER THE MOST FOR START-UP according to Bill Gross)



BUSINESS MODEL

- Converting the Story to Numbers



BUSINESS MODEL

  - Measuring Expectation
    - Financial Model
    - Valuation Analysis
  - Probability of Success/Failure

Venture Capital Investing

- Venture capital is a form of private equity that investors provide to early-stage startup companies (Phase I, II, III), as well as late-stage businesses (Series A, B and C) that have long-term growth potential.
  - Phase I – Idea Stage, Discovery & Proof of Concept (Research Stage)
    - Funded by 3Fs, Government and University grands and incubators,
  - Phase II – Pre-Seed Stage, Testing & Third-Party verification (Certifications / IP Pending / Pilot Program)
    - Funded by Angel Investors, VCs, Government and University grands, incubators and accelerators
  - Phase III – Seed Stage, Pilot & Commercialization (New Customers/Revenue – Start of Commercializing the product
    - Funded by Angel Investors, VCs, Government & University grands and accelerators.
  - Late-Stage Startups – Commercialization Stage (Customers/Revenue)
    - Funded by VCs

Venture Capital Investing

- Before an Investor Commits Capital, They Evaluate Three Core Factors:

1. Expected Return (IRR, MOIC):
   - How much value or upside potential can this investment generate relative to the capital invested?
2. Risk Assessment (P (success) = P (market works) x P (execution) x P (secure funding):
   - What is the probability of success or failure? Investors quantify both operational and market risks to understand downside exposure.
3. Time Horizon (P success by T) = P (success) x (1 – failure Rate) ^ t):
   - How long will it take to realize the return? The duration to liquidity or exit is often as important as the return itself.

Measuring Expected Return:

Converting the Story to Numbers – First Step

THE BASIS FOR BUILDING OUT PROJECTIONS

- First Questions an Investor will ask for valuing Start-ups
  - What's the market size (TAM, SAM, SOM) ?
    - Determining the Revenue (Sales) opportunity
  - Can, how and when will the company penetrate this market - commercialization?
    - Determining timing and probability of success (achieving the revenue and acceleration (growth)
  - How much will it cost to implement?
    - Cash Needs for Phase I, II and III

TAM: Total Addressable Market; SAM: Serviceable Available Market; SOM: Serviceable Obtainable Market

Risk Assessment

Converting the Story to Numbers – First Step

THE BASIS FOR BUILDING OUR VALUATION ANALYSIS

- How much would it cost to develop this idea yourself before you ask
  - Look for funding support (Government agency and FF) – bootstrap approach
- How long might it take to get off the ground
  - Determining the upfront cost and length ("death valley") of Phase I and II
- Any unexpected challenges or problems that may arise
  - Determining probability of success (on achieving the revenue and acceleration (growth)

Time Horizon

Converting the Story to Numbers – First Step

THE BASIS FOR BUILDING OUR VALUATION ANALYSIS

- Defines the investment lifecycle:
  - Investors assess how long it will take before meaningful milestones, revenue growth, or exit opportunities occur.
- Links directly to valuation:
  - The longer the path to liquidity, the higher the discount rate applied to today's valuation (Phase I. II & III)
- Ultimately affects exit planning:
  - IPO, acquisition, or secondary sale timing all stem from the investor's expected horizon for realizing value.

Building Financial Projections

PERSONAL NOTE

THIS IS WHAT I LEARNED OVER 34 YEARS BUIDLDING PROJECTIONS

Projections are stories told in numbers.

Every financial projection starts with a vision of the future. The analyst's job is to translate that vision into measurable, credible assumptions.

Startups live and die by the quality of their storytelling.

A strong financial projection supports a *simple, credible, and persuasive* story that investors can believe.

Projections must connect the story to the metrics.

Customer acquisition, churn, burn rate, and gross margins should flow logically from the founder's strategy.

PERSONAL NOTE

THIS IS WHAT I LEARNED OVER 34 YEARS VALUING COMPANIES

Early-stage projections are not forecasts — they're milestones.
In startups, projections outline the *path to traction*, not a guaranteed prediction of outcomes.

Experience defines realism.
After decades of modeling companies, one learns that growth assumptions must be anchored in operational capacity, not optimism.

Effective projections build investor confidence.
Numbers aligned with strategy show discipline, awareness, and control — qualities that attract serious investors.

First Step: Projections – Building the Financial Model

- All Companies that are in the process of raising capital, start with the base case financial model.
- The base case is the first approach to building the financial model.
- Since this model will be shared with all the stakeholders, including new and existing investors as well as management, the case needs to be simple, reasonable, and basic before any adjustments that need to be made to run other scenarios, such as the upside case, downside case and breakeven case.

Projections – Building the Financial Model

Building the Base Case

- The base case is the first projected scenario that the company sets up before making any of his or her own customized adjustments.
- When building this case, it is important for the company to arrange the revenue drivers or the cost assumptions so that are in line with industry or market standards and so the proper comparison can be made for follow-up adjustments.

Projections – Building the Financial Model

Revenue Drivers

- **The revenue drivers are customized based on the industry performance measurements that the company competes in.**
- This makes it easier to compare the results versus the industry operating benchmarks. For example, the assumptions used for a hotel company could be based on the average daily rate (ADR) representing what the customer will pay to rent the room for a night; the number of rooms available per property; and the occupancy rate (OR), which represents the rooms that are rented as a percentage of total available rooms.
- For companies that sell products, the revenues are typically driven by volume and price.
- For companies that is the service business, the revenues are typical service fees by the number of customers (MRR, ARR)
- The company runs different assumptions on the volume growth and price increase/decrease assumption to drive the future revenue.
- The best starting approach of setting up these assumptions is to use historical growth rates based on market demand and extend them going forward. Then the company can use discretion to adjust these numbers based on expectation.

Sample Business Startup KPI Dashboard

Metric	Definition	Formula	Target Benchmark	Example Value	Investor Insight
Traction	Evidence of user or revenue growth over time	Growth Rate = (Current Users – Previous Users) ÷ Previous Users	10–20% MoM early-stage	+15% Monthly Active Users	Demonstrates adoption and momentum
Customer Acquisition Cost (CAC)	Average cost to acquire a new customer	CAC = Total Marketing Spend ÷ # of New Customers	$100–$300 (SaaS benchmark)	$220	High CAC suggests inefficiency; needs LTV balance
Lifetime Value (LTV)	Average revenue expected per customer over their lifetime	LTV = ARPU × Gross Margin × Customer Lifespan	≥ 3× CAC	$1,200	LTV/CAC = 5.5× — indicates efficient growth
Churn Rate	% of customers lost during a period	Churn = Lost Customers ÷ Starting Customers	< 5% monthly	3.8%	Low churn shows strong retention and satisfaction
Burn Rate	Net monthly cash outflow	Burn = Monthly Expenses – Monthly Revenue	< 10% of total cash balance	$60K/mo	18 months runway at current burn
Metric	Definition	Formula	Target Benchmark	Example Value	Investor Insight

From the Investor Lens: Numbers vs. Narrative

Investor Lens	What They See in the Numbers	What They Hear in the Narrative	Why Both Matter
Traction Metrics	Growth rates, user retention, and revenue trends	"We're solving a real pain point that users love."	Numbers show adoption; narrative shows why adoption is sustainable.
Financial Efficiency	CAC, LTV, burn rate, and unit economics	"We're disciplined with capital and focused on long-term value creation."	Quantifies efficiency; narrative frames financial prudence and scalability.
Market Size (TAM/SAM/SOM)	Market potential and realistic penetration rates	"This is a massive and growing market ripe for disruption."	Numbers show opportunity; narrative conveys ambition and timing.
Team Composition	Experience, complementary skills, execution track record	"We've built companies before and know how to navigate uncertainty."	Metrics reveal capacity; story reveals credibility and leadership chemistry.
Milestone Achievements	MVP completed, revenue goals hit, new partnerships signed	"We're hitting targets faster than expected because our model works."	Numbers validate execution; narrative inspires confidence in momentum.
Future Forecasts	Financial projections, valuation assumptions	"Here's how we'll scale responsibly and capture market share."	Numbers offer precision; narrative provides vision and purpose.

Another Approach – The Pipeline Report

While startup metrics such as Customer Acquisition Cost (CAC), Lifetime Value (LTV, and Churn capture important financial ratios, investors often ask a simpler and more direct question: "Where will your next dollar of revenue come from?"

Status	% Probability
Prospecting	10%
Appointment Scheduled	20%
Qualified to Buy	30%
Project Scoping	60%
Contract Sent	90%
Closed Won	100%
Closed Lost	0%

Customer Name	Expected Close Date	Potential Revenue (€)	Status	% Probability	Expected Revenue (€)
Alpha Retail Ltd.	March 2026	€100,000	Project Scoping	60%	€60,000
BioSense Labs	April 2026	€250,000	Contract Sent	90%	€225,000
Vision AR Inc.	May 2026	€75,000	Qualified to Buy	30%	€22,500
Meditronix SA	June 2026	€180,000	Prospecting	10%	€18,000
TechNova Group	May 2026	€320,000	Closed Won	100%	€320,000
Total Expected Revenue					€645,500

VC Approach: Why do Business Start-up need Financial Analysis?

- Step 1: Determine the cash needs (building the sources and uses) for Phases I,II,III
- Step 2: Determine the valuation (Cost basis, options, market and income on many exit opportunity scenarios)
- Step 3: Used as a tool to sensitize (pivot, probability of success, cash needs)

CASE STUDY
AeroSense AI Technologies Inc.

BUILDING THE PROJECTIONS

Case Study - AeroSense AI Technologies, Inc.

COMPANY OVERVIEW

AeroSense AI Technologies, Inc. is a clean-tech startup developing intelligent indoor air quality (IAQ) monitoring devices for commercial and residential applications. Its AI-powered platform continuously monitors environmental conditions, detects hazardous air quality incidents, and delivers real-time alerts and analytics.

The company's business model combines hardware device sales with recurring Software-as-a-Service (SaaS) subscriptions, creating two complementary revenue streams.



MARKET OPPORTUNITY:

Global IAQ market by 2030	Target market estimate	Potential locations
$10.15B	$6.0B	515M

Case Study

Building the Sources and Uses through the Phase I – III and steady commercialization

AeroSense AI Technologies, Inc.

Scenario Valuation Analysis

Source of Capital (€)	Phase I	Phase II	Phase III
Government / University Grands	100,000	100,000	-
Equity Investment	-	100,000	650,000
Total Sources of Capital	**100,000**	**200,000**	**650,000**

Uses of Capital	Phase I	Phase II	Phase III
Matrialas (Inventory)		10,000	65,000
Labor		-	110,860
Overhead			5,100
General Expenses	9,000	36,000	11,000
Administrative (Salaries)	45,000	90,000	566,500
Capex			
Cash Reserve	46,000	74,000	(43,460)
Total Use of Capital	**100,000**	**200,000**	**650,000**
Net Cash Burn	46,000	120,000	76,540

Case Study
Building the Top Line Revenue 6-year projection

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
OPERATING ASSUMPTIONS							
Product - Sales							
Price per Unit		$200.00	$200.00	$200.00	$200.00	$200.00	$200.00
% Increase/(Decerease			0.0%	0.0%	0.0%	0.0%	0.0%
Quantity Sold		-	500	2,500	7,000	15,000	30,000
Segment Revenue		$ -	$ 100,000	$ 500,000	$ 1,400,000	$ 3,000,000	$ 6,000,000
Product - Service							
Services $	$8.00	$96.00	$96.00	$96.00	$96.00	$96.00	$96.00
% Increase/(Decerease			0.0%	0.0%	0.0%	0.0%	0.0%
Quantity Sold		-	500	2,500	7,000	15,000	30,000
Segment Revenue		$ -	$ 48,000	$ 240,000	$ 672,000	$ 1,440,000	$ 2,880,000
Total Revenue		**$ -**	**$ 148,000**	**$ 740,000**	**$ 2,072,000**	**$ 4,440,000**	**$ 8,880,000**

Case Study
Building the Top Line Revenue 6-year projection

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cost of Goods Sold						
Avg Prod Cost of Unit		$95.00	$95.00	$95.00	$95.00	$95.00
Cost of unit as $ of Price		53%	53%	53%	53%	53%
Avg Cost of Service		$10.00	$10.00	$10.00	$10.00	$10.00
Cost of unit as $ of Price		10%	10%	10%	10%	10%
Materials Cost	$0	$52,500	$210,000	$525,000	$1,050,000	$2,100,000
Avg Wages per hour		$11.50	$11.50	$11.50	$11.50	$11.50
% Increase/(Decerease		0.0%	0.0%	0.0%	0.0%	0.0%
Number of Labor workers		2	2	3	3	4
Hours per year		4,820	9,640	9,640	9,640	9,640
Labor Cost	$0	$110,860	$221,720	$332,580	$332,580	$443,440
Overhead as % of Manufacturing Sales		3.0%	3.0%	3.0%	3.0%	3.0%
Overhead	$ -	$2,700	$10,800	$27,000	$54,000	$108,000
Total COGS	**$ -**	**$166,060**	**$442,520**	**$884,580**	**$1,436,580**	**$2,651,440**

Case Study
Building the Top Line Cost Assumptions 6-year projection

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Operational Expenses						
Marketing/Selling						
Selling as % of Sales		10.0%	10.0%	10.0%	10.0%	10.0%
Selling	$5,000	$14,800	$74,000	$207,200	$444,000	$888,000
General (Rent, Supplies, Other)						
General as Percentage of Sales		2.0%	2.0%	2.0%	2.0%	2.0%
General	$10,000	$960	$4,800	$13,440	$28,800	$57,600
Admistative						
Number of Salaried Employees						
CEO	1	1	1	1	1	1
CTO	1	1	1	1	1	1
VP Marketing	1	1	2	2	2	2
Other Employees	1	2	5	7	10	10
Salaries						
CEO	$ 50,000	$ 90,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
CTO	$ 40,000	$ 80,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000
VP Marketing	$ 35,000	$ 70,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000
Other Employees	$ 30,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
Salaries	$ 155,000	$ 360,000	$ 640,000	$ 760,000	$ 940,000	$ 940,000
Other Administrative Expenses % of Salaries	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Other Administrative Expenses	$ 15,500	$ 36,000	$ 64,000	$ 76,000	$ 94,000	$ 94,000
Administrative	$ 170,500	$ 396,000	$ 704,000	$ 836,000	$ 1,034,000	$ 1,034,000
Other	$ -	$ -	$ -	$ -	$ -	$ -
Total Opex	**$ 185,500**	**$ 411,760**	**$ 782,800**	**$ 1,056,640**	**$ 1,506,800**	**$ 1,979,600**

Case Study
Building the Cash Flow Assumptions 6-year projection

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cash Flow Assumptions						
Accounts Receivable Days	60	60	60	60	60	60
Inventory Days	60	60	60	60	60	60
Other Current Assets as % of Revenue	0%	0%	0%	0%	0%	0%
Accounts Payable Days	30	30	30	30	30	30
Accrued Expenses as % of Revenues	0%	0%	0%	0%	0%	0%
Other Current Liabilities as % of Revenues	0%	0%	0%	0%	0%	0%
Capex as % of Revenues	5%	5%	5%	5%	5%	5%
Other Assets as % of Revenue	0%	0%	0%	0%	0%	0%

Case Study
Deliverable Financial Information

AeroSense AI Technologies, Inc.

Financial Model for Product Development Company and SaaS

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
INCOME STATEMENT							
Revenues							
Product		-	100,000	500,000	1,400,000	3,000,000	6,000,000
Services		-	48,000	240,000	672,000	1,440,000	2,880,000
Total Revenue		-	148,000	740,000	2,072,000	4,440,000	8,880,000
Revenue growth %							
Cost of Revenue		-	141,360	374,220	759,580	1,247,580	2,273,440
Gross Profit		-	6,640	365,780	1,312,420	3,192,420	6,606,560
Operating Expenses		185,500	411,760	782,800	1,056,640	1,506,800	1,979,600
EBITDA		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Depreciation		-	-	-	-	-	-
Amortization		-	-	-	-	-	-
EBIT		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Interest		-	-	-	-	-	-
EBT		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Taxes	12%	-	-	-	-	-	-
Net Income		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960

Case Study
Deliverable Financial Information

AeroSense AI Technologies, Inc.

Financial Model for Product Development Company and SaaS

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BALANCE SHEET							
Cash	120,000	584,500	136,033	565,558	467,106	1,501,356	4,870,136
Accounts Receivable	-	-	24,329	121,644	340,603	729,863	1,459,726
Inventory	-	-	23,237	61,516	124,862	205,082	373,716
Other Current Assets	-	-	-	-	-	-	-
Total Current Assets	120,000	584,500	183,599	748,718	932,571	2,436,301	6,703,578
Property, Plant & Equipment	-	-	7,400	44,400	148,000	370,000	814,000
Less Accum. Depreciation	-	-	-	-	-	-	-
Net Property, Plant & Equipment	-	-	7,400	44,400	148,000	370,000	814,000
Other Assets	-	-	-	-	-	-	-
Total Assets	120,000	584,500	190,999	793,118	1,080,571	2,806,301	7,517,578
Accounts Payable	-	-	11,619	30,758	62,431	102,541	186,858
Accured Expenses	-	-	-	-	-	-	-
Other Current Expenses	-	-	-	-	-	-	-
Total Current Liabilities	-	-	11,619	30,758	62,431	102,541	186,858
Government Grands	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Long Term Debt	-	-	-	-	-	-	-
Other Long-term Liabiities	-	-	-	-	-	-	-
Total Liabilities	200,000	200,000	211,619	230,758	262,431	302,541	386,858
Common Stock	100,000	750,000	750,000	1,750,000	1,750,000	1,750,000	1,750,000
Retained Eranings	(180,000)	(365,500)	(770,620)	(1,187,640)	(931,860)	753,760	5,380,720
Total Net Worth	(80,000)	384,500	(20,620)	562,360	818,140	2,503,760	7,130,720
Total Liabilties & Net Worth	120,000	584,500	190,999	793,118	1,080,571	2,806,301	7,517,578
Error Check	-	-	-	-	-	-	-

Case Study
Deliverable Financial Information

AeroSense AI Technologies, Inc.

Financial Model for Product Development Company and SaaS

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
CASH FLOW STATEMENT							
Net Income		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Add Depreciation		-	-	-	-	-	-
Add Amortization		-	-	-	-	-	-
Cash Income		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Working Capital Activity							
Change in Accounts Receivable		-	(24,329)	(97,315)	(218,959)	(389,260)	(729,863)
Change in Inventory		-	(23,237)	(38,278)	(63,347)	(80,219)	(168,635)
Change in Other Current Assets		-	-	-	-	-	-
Change in Accounts Payable		-	11,619	19,139	31,673	40,110	84,317
Change in Accrued Expenses		-	-	-	-	-	-
Change in Other Current Liabilities		-	-	-	-	-	-
Total Working Capital		-	(35,947)	(116,454)	(250,632)	(429,370)	(814,180)
Investment Activity							
Capital Expenditures		-	(7,400)	(37,000)	(103,600)	(222,000)	(444,000)
Change in Other Assets		-	-	-	-	-	-
Total Investments		-	(7,400)	(37,000)	(103,600)	(222,000)	(444,000)
Financing Activity							
Government / University Grands		-	-	-	-	-	-
Long Term Debt		-	-	-	-	-	-
Other Liabilities		-	-	-	-	-	-
Equity Issuance		650,000	-	1,000,000	-	-	-
Total Financing Activity		650,000	-	1,000,000	-	-	-
Free Cash Flow		464,500	(448,467)	429,526	(98,452)	1,034,250	3,368,780
Beginning Cash		120,000	584,500	136,033	565,558	467,106	1,501,356
Free Cash Flow		464,500	(448,467)	429,526	(98,452)	1,034,250	3,368,780
Ending Cash		584,500	136,033	565,558	467,106	1,501,356	4,870,136

Business Valuations

Does anyone know this guy?



Anyone knows this guy?

Laszlo Hanyecz
Crypto Developer /Code writer / Early bitcoin miner



May 22,2010, he bought 2 Pizza pies with 10,000 bitcoins

May 22, 2010: 1 Bitcoin=$0.004
2 pizzas cost $40

May 22, 2025: 1 Bitcoin = $90,000
2 pizzas cost **$900,000,000**

Today, 1 Bitcoin = $100,000+



PERSONAL NOTE

THIS IS WHAT I LEARNED OVER 35 YEARS VALUING COMPANIES

- Valuing a company is both art and science.

  Behind every model, there are assumptions, narratives, and human judgment. The numbers may be precise, but valuation is never exact.

- Subjectivity is inevitable.

  No two analysts will interpret the same set of data the same way. What one calls "growth potential," another may see as "execution risk."

- Data requires interpretation, not just calculation.

  The data used in valuation methods—revenues, margins, or discount rates—are often estimates that require both experience and perspective to interpret correctly.

  Final Thought:
  You can build the most sophisticated model, but ultimately, *the value of anything is what someone is willing to pay.*

BUSINESS VALUATIONS 101

- **Established Companies (Public and Private)**
  - Method #1 – Using the stock price (public) – MARKET METHOD
  - Method #2 – Intrinsic Value (using CAPM as the expected return) – MARKET METHOD
  - Method #3 – Dividend Discount Model (DDM) (public) – MARKET METHOD
  - Method #4 – Trading EBITDA Comparable (Public and Private) - MARKET METHOD
  - Method #5 – Acquisition EBITDA Comparable (Public and Private) – MARKET METHOD
  - Method #6 – Discount Cash Flow (DCF) (Public and Private) – INCOME METHOD
  - Method #7 – Leveraged Buyout (LBO) (Public and Private) – INCOME METHOD

- **Newly Established Companies/Intellectual Property (Private)**
  - Method #8 – Cost Replacement – Seed & Angel Investor – COST BASIS METHOD
  - Method #9 – Option Pricing Method – Angel Investor – OPTION/PROBABILITY METHOD
  - Methods #4-7 (Adjusted) for Market and Income methods based on VC and PE Equity – MARKET/INCOME METHODS
- **Other Valuation Techniques for Intangibles (Trademarks, Brands, Goodwill) and Distress Companies**

Categories
MARKET METHOD
INCOME METHOD
COST BASIS METHOD
OPTION / PROBABILITY METHOD

BUSINESS VALUATIONS 101

- We will focus on 2 methods today in our workshop

- Method #6 – Discount Cash Flow (DCF) (Public and Private) – INCOME METHOD

- Method #9 – Option Pricing Method – Angel Investor – OPTION/PROBABILITY METHOD

Probability Theory 101- Return, Risk and Time

THREE FACTORS THAT NEEDDED TO MEASURE BEFORE AN INVESTOR WILL INVEST:

- **Measure Expected Return**
- **Quantify Risk**
- **Set Time (Exit)**



Game: One toss of a coin to hit HEADS:

- Measure Expected Return (Win): $600 (payoff)
- Quantify Risk: 50/50 win/loss
- Time: in 2 seconds

- What is the fair bet? - How much to Invest?
  - $300 - mathematically using probability theory is (50% x $600) + (50% x $0) = $300+ 0 = $300



Game: One toss of dice to hit a SIX:

- Measure Expected Return (Win): $600 (payoff)
- Quantify Risk: 1/6 to win, 5/6 to lose
- Time: in 2 seconds

- What is the fair bet? - How much to Invest?
  - $100 - mathematically using probability theory is (1/6 x $600) + (5/6 x $0) =
    $100 + 0 = $100

Using Black-Scholes Option Pricing Methodology to Value Startups

- Is there a real option embedded in a decision or an asset (Opportunity)? YES
  - Applying the C = S – X

    Call price (C) as the Investment Payoff (Premium) , Strike Price (X) as the Cost of Development or the initial investment and Value of the start-up in the future as the underline Asset (S)
- Does that real option have significant economic value (5x – 10x the original investment or is the "C " 5.0x-10x the "X")? YES
  - For example, questions like What is the competition? Is this idea exclusive? Can this idea solve problems? Is this a good time?
- Can that value be estimated using option pricing model (i.e. Totally Addressable Market)? YES
  - Leading to S – X > Minimum Return Expectation (5x – 10x)

$$\text{Payoff} = \text{Enterprise Value} - \text{Development Cost}$$

Using Black-Scholes Option Pricing Model to predict how out of money call option can be profitable

$$\text{Payoff} = \text{Enterprise Value} - \text{Development Cost}$$

$$C = S - X$$

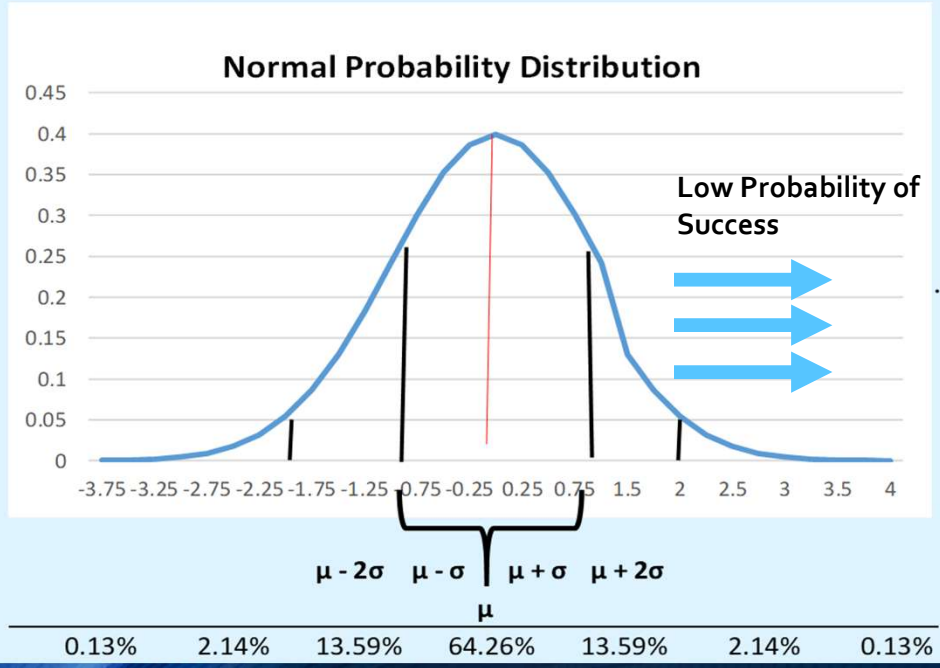
$$C = Se^{-\delta t}[N(d1)] - Xe^{-it}N(d1)$$

Using Black-Scholes Option Pricing Model to predict how out of money call option can be profitable

$$C = Se^{-\delta t}[N(d1)] - Xe^{-i}\,N(d1)$$

$$d1 = \frac{\ln(\frac{S}{X}) + \left(i - \delta + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}$$

$$d2 = d1 - \sigma\sqrt{t}$$



NORMAL DISTRIBUTION TABLE

d	N(d)	d	N(d)	d	N(d)	d	N(d)	d	N(d)
3.200	0.999	1.900	0.971	0.600	0.726	-0.700	0.242	-2.000	0.023
3.100	0.999	1.800	0.964	0.500	0.691	-0.800	0.212	-2.100	0.018
3.000	0.999	1.700	0.955	0.400	0.655	-0.900	0.184	-2.200	0.014
2.900	0.998	1.600	0.945	0.300	0.618	-1.000	0.159	-2.300	0.011
2.800	0.997	1.500	0.933	0.200	0.579	-1.100	0.136	-2.400	0.008
2.700	0.997	1.400	0.919	0.100	0.540	-1.200	0.115	-2.500	0.006
2.600	0.995	1.300	0.903	0.000	0.500	-1.300	0.097	-2.600	0.005
2.500	0.994	1.200	0.885	-0.100	0.460	-1.400	0.081	-2.700	0.003
2.400	0.992	1.100	0.864	-0.200	0.421	-1.500	0.067	-2.800	0.003
2.300	0.989	1.000	0.841	-0.300	0.382	-1.600	0.055	-2.900	0.002
2.200	0.986	0.900	0.816	-0.400	0.345	-1.700	0.045	-3.000	0.001
2.100	0.982	0.800	0.788	-0.500	0.309	-1.800	0.036	-3.100	0.001
2.000	0.977	0.700	0.758	-0.600	0.274	-1.900	0.029	-3.200	0.001

Case Study - AeroSense AI Technologies Inc.

Using both Income Method (DCF Analysis) and Option Pricing methods for valuating IP

- The Value of a firm's new innovative products that will be put to commercialization can be derived using the option pricing model
- Value of the Firm = Value of products after it is commercialized or licensed (DCF Analysis)
- Measuring the efficiency of the firm for converting its Development Cost into a commercial product and revenue.

Case Study
Using both Income Method (DCF Analysis) and Option Pricing methods for valuating the Startup

AeroSense AI Technologies, Inc.

Scenario Valuation Analysis

	R&D Stage		Commercialization Stage					
	Phase I	Phase II	Phase III		Phase IV			
	Year -1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
REVENUES			-	148,000	740,000	2,072,000	4,440,000	8,880,000
EBITDA	(54,000)	(136,000)	(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Less Capex	-	-	-	(7,400)	(37,000)	(103,600)	(222,000)	(444,000)
Less Working Capital			-	(35,947)	(116,454)	(250,632)	(429,370)	(814,180)
Cash Flow from Operations and after Capex and WC	(54,000)	(136,000)	(185,500)	(448,467)	(570,474)	(98,452)	1,034,250	3,368,780
Less Cash Reserve								
Cash Needs		**(190,000)**	**(185,500)**	**(448,467)**	**(570,474)**	**(98,452)**	**1,034,250**	**3,368,780**

Case Study
Using both Income Method (DCF Analysis) and Option Pricing methods for valuating the Startup

VENTURE CAPITAL LEVEL DCF									
FIRST YEAR PRODUCT COMMERCIALIZATION									
		Year -1	Year 0		Phase I/II	Phase III	Year 3	Year 4	Year 5	Year 6
Revenue						148,000	740,000	2,072,000	4,440,000	8,880,000
EBITDA		(54,000)	(136,000)		(185,500)	(405,120)	(417,020)	255,780	1,685,620	4,626,960
Cash Flow					464,500	(448,467)	429,526	(98,452)	1,034,250	3,368,780
Terminal Value										
Technology Revenue Multiple Assumption	**3.0x**								13,320,000	
Technology EBITDA Multiple Assumption	**10.0x**								16,856,200	
Perpetuity Method	**12.0%**								28,073,164	
Average Terminal Value									19,416,455	
Cash Flows				(750,000)	464,500	(448,467)	429,526	(98,452)	20,450,705	
Present Value of Enteprise Value	**30% Exp. IRR (VC Level)**									
Equit Investment					**$5,760,946**					
Equity IRR					**103.6%**					

Case Study
Using both Income Method (DCF Analysis) and Option Pricing methods for valuating IP

SEED & ANGEL FINANCING LEVEL

COST BASIS VALUATION

	Year -1	Year 0	Phase I/II	Phase III
Transaction Uses - Cash Needs - from operations		(190,000)		(633,967)
Commulative			(190,000)	(823,967)
Transdaction Sources - Capital Raising				
Government Grands - Firm				
New Government Grands Expected			200,000	
Equit Investment		**Private Equity**	100,000	650,000
Other Investors				
Total Sources of Cash			300,000	850,000
Total Funding				**1,150,000**
Equit Investment			-	

CALL OPTION PRICING VALUATION

INPUT		
IP Patent/Repla	10	years
Cost of Delay =	0.0%	2.0/10
Rfr=	3.00%	
Variance =	11.00%	
σ =	33.2%	(High/Low deviat.)
OUTPUT		
d1 =	4.029770	(deviation of value)
d2 =	2.980962	
N(d1) =	0.999972	(prob. of success)
N(d2) =	0.998563	
Value=	**5,420,012**	
Equit Investment	750,000	

REVIEW:

- Think from the VC and PE point of view: They look at the following 3 factors before they invest
  - **Measure Expected Return**
  - **Quantify Risk**
  - **Set Time (Exit)**
- Convert your story to value
- Basic Questions a Buyer will ask for valuing Start-ups
  - What's the market size? Determining the Revenue opportunity
  - What are the competitive advantages? Determining probability of success (achieving the revenue and acceleration (growth)
  - How much will it cost to implement? Cash Needs for Phase I, II and III
- Factoring the Risks:
  - How much would it cost to develop this idea yourself – Look for funding support (Government agency and FF) – bootstrap approach
  - How long might it take to get off the ground Determining the upfront cost and length ("death valley") of Phase I and II
  - Any unexpected challenges or problems that may arise Determining probability of success (on achieving the revenue and acceleration (growth)

Additional Information

Comparison Table – Angels vs. VCs vs. Alternative Sources

Category	Angel Investors	Venture Capitalists (VCs)	Alternative Capital Sources
Typical Investor Profile	High-net-worth individuals investing personal funds	Institutional investors managing pooled funds (LPs)	Crowdfunding platforms, accelerators, corporate venture arms, family offices, strategic partners, or government grants
Investment Stage	Pre-seed to early-stage (idea to MVP)	Seed to late stage (scaling to exit)	Varies – from pre-seed (crowdfunding, grants) to growth (private equity, corporate venture)
Investment Size	$10,000 – $500,000 (individually or in syndicates)	$1 million – $50 million + (depending on fund size)	Ranges widely: $5,000 (crowdfunding) to $100 million + (corporate or PE)
Funding Structure	Convertible notes, SAFEs, or direct equity	Preferred equity, convertible preferred shares	Convertible instruments, debt, revenue-based financing, or non-dilutive grants
Decision Speed	Fast (weeks); personal and flexible	Slower (months); formal due diligence and committee approval	Depends on type — fast for crowdfunding, slow for corporate or government
Motivation	Personal interest, mentorship, local ecosystem support	Financial returns, portfolio performance, fund mandates	Strategic alignment, diversification, community engagement, or policy objectives
Level of Involvement	Hands-on mentoring, frequent interaction with founders	Governance role via board seat; strategic oversight	Varies — from passive (crowdfunding) to active (accelerators, corporate venture)
Risk Tolerance	High – willing to take early bets	Moderate – prefer proven traction	Mixed – depends on structure (grants = high tolerance, banks = low)
Return Expectation	5× – 10× over 5 – 7 years	3× – 5× fund-level return target	Varies widely — may seek financial, strategic, or social returns
Exit Strategy	Acquisition or follow-on VC round	IPO, acquisition, or secondary sale	Depends on source — may not require exit (grants) or expect revenue sharing
Value Beyond Capital	Mentorship, network access, early credibility	Strategic guidance, recruiting help, institutional validation	Platform visibility, customer access, corporate partnerships, or non-dilutive support