

BrAIn’s Anatomy: From Brain Signals to Insight | EESTEC LC Patras

Technology Commercialization and the Role of Venture Capital

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A bit about me

Chemical Engineer by training, 10+ years of experience in VC, Consulting and the Industry

Backing early-stage deep tech startups through Metavallon VC and the Brain Gain fund

Think Silicon®
AN APPLIED MATERIALS COMPANY

cogitat®

SEERVISION

VC investments that transformed our lives

1978 — Apple
Arthur Rock + Sequoia · personal computer, iPhone, app economy — redefined consumer tech
$517K seed | return ~378x (Arthur Rock) · ~40x (Sequoia)

1981 — Microsoft
Technology Venture Investors · put software on every desk, then in every cloud (Azure, GitHub, OpenAI)
~$1M early | return ~100x at 1986 IPO

1994 — Netscape
Kleiner Perkins · birthed the commercial internet
~$5M seed | return ~100x at 1995 IPO

1995 — Amazon
Kleiner Perkins · reinvented retail & cloud computing
$8M Series A | return >$1B on $8M (Kleiner Perkins)

1997 — eBay
Benchmark Capital · pioneered peer-to-peer online marketplaces
$6.7M Series A | return ~$5B+ on $6.7M · ~100,000x · best VC return of its era

1999 — Google
Kleiner Perkins + Sequoia · organised the world's information
$25M ($12.5M each) | return ~$4.3B each · ~350x by 2005

2004 — Facebook
Peter Thiel + Accel Partners · social graph connecting 3B+ people; reshaped media, politics & advertising
$500K (Thiel) · $12.7M (Accel) | return $1B+ (Thiel, ~2,000x)

2004 — SpaceX
Founders Fund · made orbital rockets reusable
$20M Series A | return ~$40B+ stake (still private) · 2,000x+

2005 — YouTube
Sequoia Capital · democratised video publishing; acquired by Google for $1.65B in 2006
$11.5M total | return ~$480M · ~44x in 18 months

2006 — Tesla
Elon Musk + VantagePoint Capital · proved EVs desirable, forcing every automaker to electrify
$7.5M Series A | return IPO at $17 (2010) · stock up 21,000%+ since

2010 — Moderna
Flagship Pioneering · unlocked mRNA medicine & vaccines
$40M seed | return IPO at $7.5B valuation (2018) · peaked at $185B in 2021

2012 — DeepMind
Horizons Ventures · cracked protein folding & game AI; acquired by Google for ~£400M
~$50M | return ~£400M acquisition · ~8x in 2 years

2015 — Editas Medicine (CRISPR)
Flagship, GV · gene editing as medicine
$120M Series B | return IPO 2016 · ongoing clinical pipeline

2015 — Neobanks — Revolut, N26, Chime
Balderton, DST, Index · mobile-first banking with no branches; forced incumbents to digitise
$1.8B+ Revolut | return Revolut at $45B (2024) · 25x+ for early LPs

2016 — Waymo / Autonomous Vehicles
Alphabet · transformed how cities think about mobility
Billions | return Valued at ~$45B (2024) · commercialising in SF & Phoenix

2019 — OpenAI
Microsoft · launched the generative AI era
$1B+ → $13B+ total | return Microsoft stake ~$50B+ (2024) · ~50x

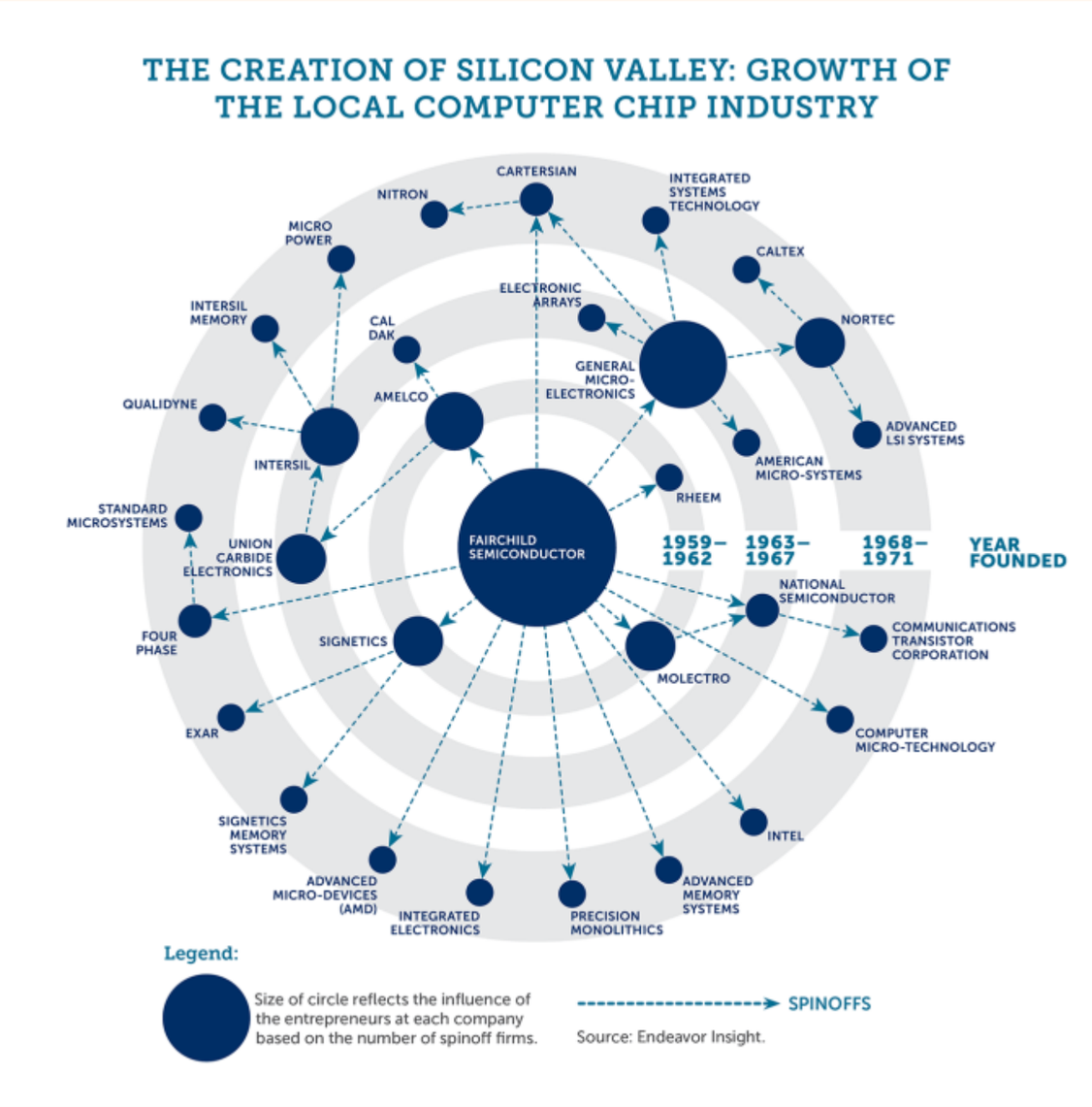
2021 — Helion Energy
Sam Altman, Dustin Moskovitz · betting on commercial fusion power
$375M | return Valued at ~$3.8B (2024) · ~10x paper return

2020s — Generative AI / LLMs
a16z, Sequoia, Spark, Google Ventures · Anthropic, Mistral, Cohere, Stability AI — text, image & code generation at scale; fastest-adopted tech in history
$50B+ wave | return Anthropic ~$60B · OpenAI ~$300B · category still forming

Computing & AI · Biotech · Deep science · Fintech · Cleantech / Bio · Mobility / Commerce · Consumer tech

How did it all start?

1. ARDC, the world's first organized VC, was stablished in 1946 by Georges Doriot, ex-HBS professor and U.S. Army technologist, in Boston.
2. In 1957, ARDC invested **$70K for 70% equity** in Digital Equipment Corporation. In 1966 the company IPO'd at a ~$40M valuation returning ~$28M (400x).
3. In 1957 the "Traitorous Eight" defected from Shockley Semiconductor. **Arthur Rock**, a former student of George Doriot brokered $1.4M, birthing Fairchild Semiconductor.
4. Cultural & Geographic Shift: Spurred a cascade of spin-outs, including Intel (ex-Fairchild founders), AMD and others.
5. Silicon Valley's Birth



The broken pipeline

Great technology dies every day. Why?

University Labs

Produce breakthroughs — but **not** products. The incentive structure rewards publication, not commercialization.

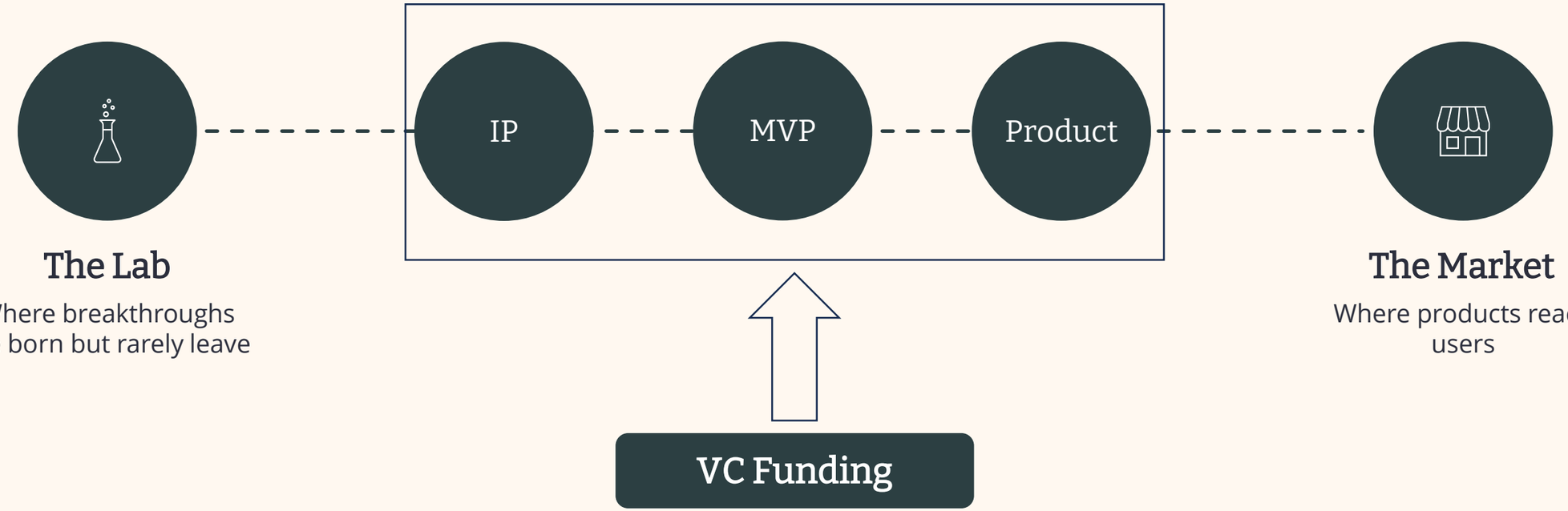
Government Grants

Fund discovery — **not commercialization**. Once the research milestone is met, the money stops.

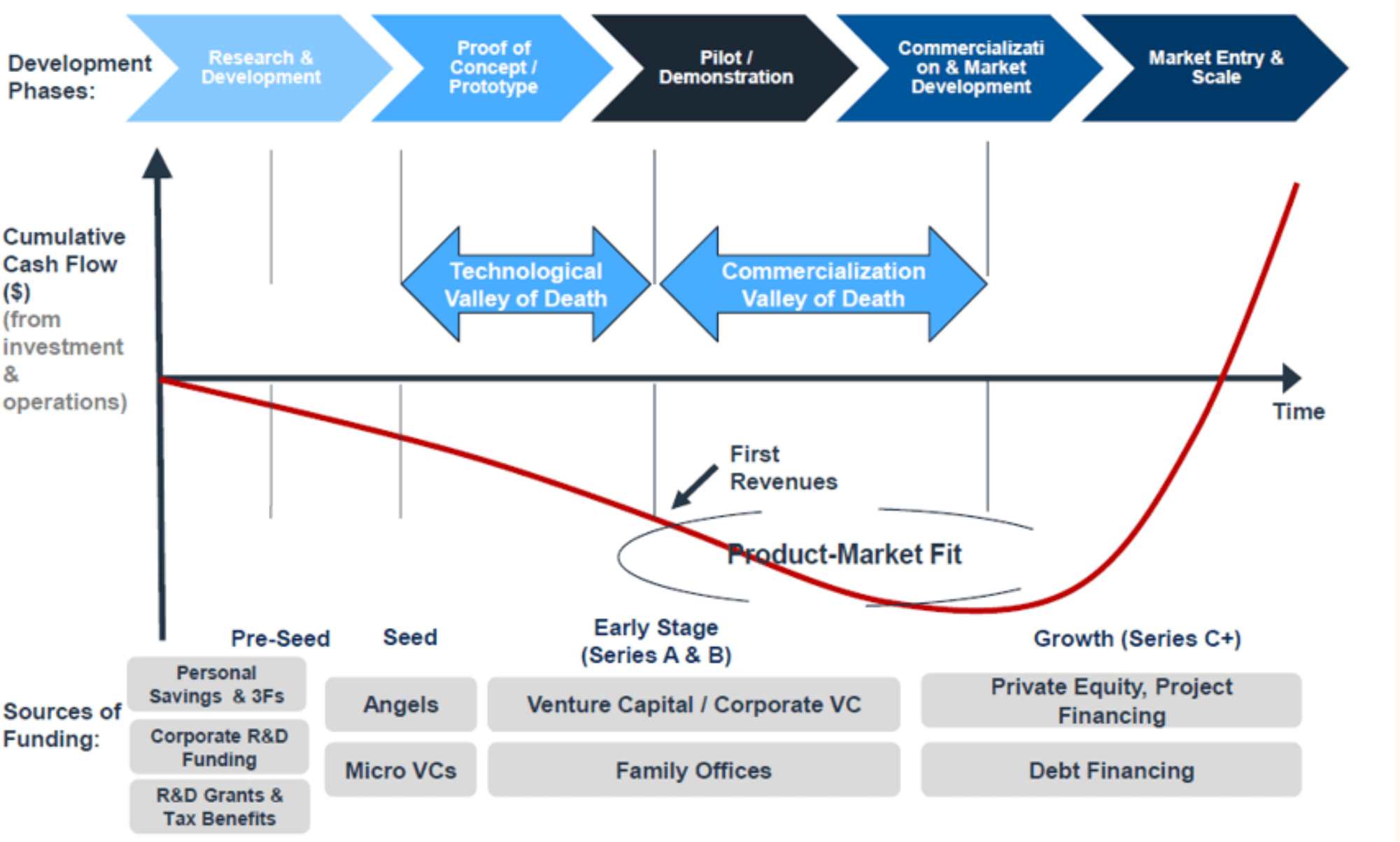
Companies

Want proven technology — **not experiments**. Corporate R&D budgets favor incremental improvement over radical innovation.

The Lab-to-Market Gap

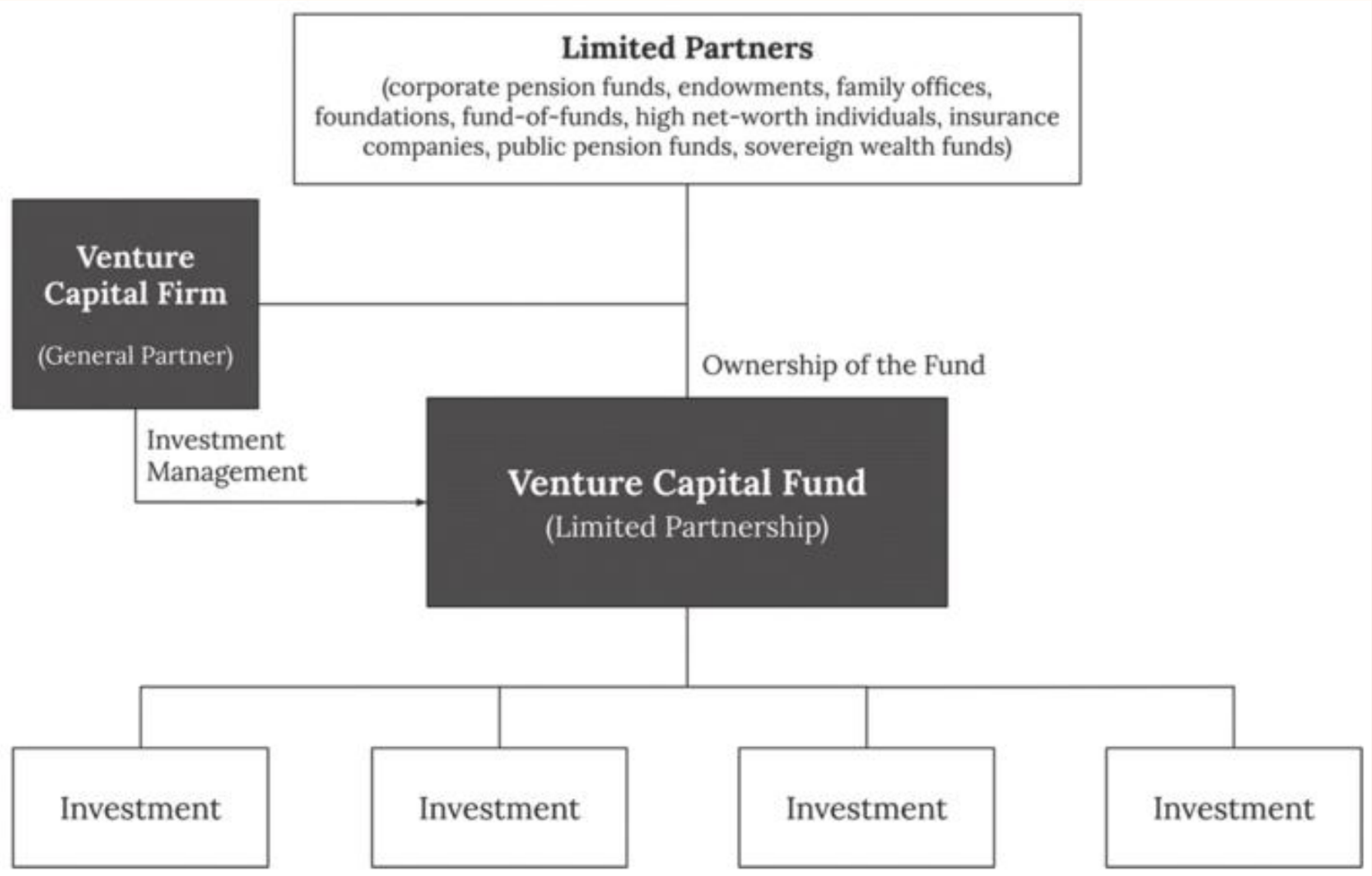


Lifecycle of a Venture

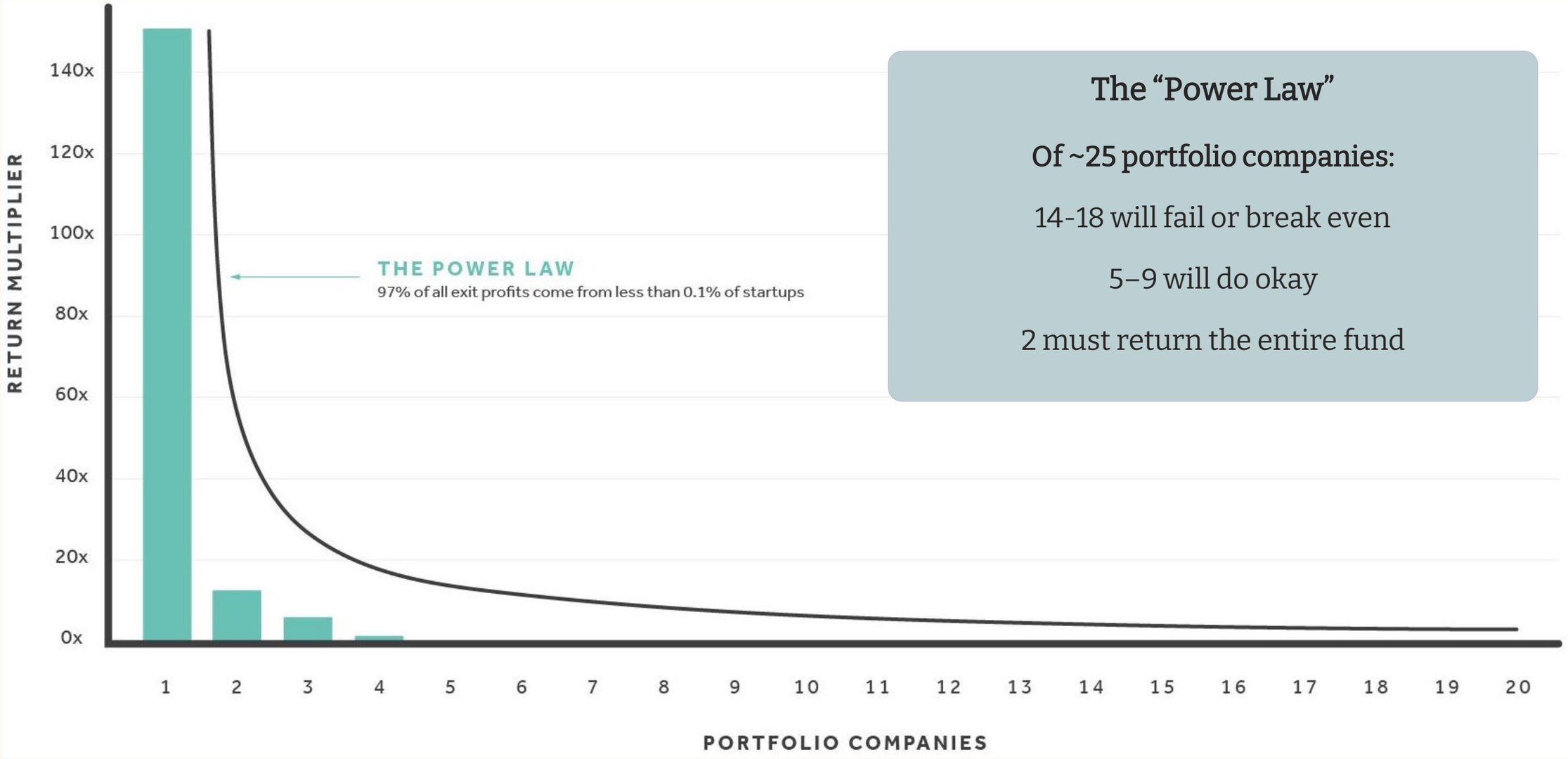


What is a VC, really?

A **VC fund** is a pool of money from investors used to fund early-stage startups in exchange for equity .



How do VCs make money?



The "Power Law"

Of ~25 portfolio companies:

14-18 will fail or break even

5–9 will do okay

2 must return the entire fund

Fund Structure Example

An example of a fund with size of $100M.

1

Fund Size

$100M

2

Management Fees

~2% p.a. of fund size = **$20M** over 10 years

3

Investable Capital

$80M

4

Average Initial Ticket

$2M

5

of Initial Investments

25

6

Average Follow-on

$2M

What VCs look for in Tech

Defensibility

Strong IP covering the core technology securing long-term advantage against potential competitors.

Tech & Commercial Scalability

Ability of the technology to scale from prototype to mass production. Ability to deliver to customers without customizations or delays.

Team Expertise & Execution

Domain experience, team complementarity, commercial mindset.

Market Size / Validation

Is the technology addressing a sufficiently large market size?

Timeline of Key Milestones

Reasonable development timelines & milestones. Future financing rounds.

Exit Potential

If all goes well and the company is eventually acquired, at what price can it be sold?

VC Investment Process



Key Investment Terms

1

Valuation
Determining the pre-money and post-money value of the company, often a blend of art and science based on market comparables and future projections.

2

Liquidation Preferences
Ensures investors receive their capital back (often 1x non-participating) before common shareholders in an exit event.

3

Board Composition
Defines investor representation on the board, ensuring strategic oversight and governance.

How VC investment works in practice

Assumptions

	Seed *(Years 1 - 3)*	**Series A** *(Years 4 - 6)*	**Series B** *(Years 7 - 9)*	**Series C** *(Years 7 - 9)*
Investment ($M)	2.5	10.0	25.0	100.0
Required Ownership	20%	20%	20%	20%
Post-money valuation ($M)	12.5	50.0	125.0	500.0
Pre-money valuation ($M)	10.0	40.0	100.0	400.0
Outstanding shares (M):	10.0	12.5	15.6	19.5
Shares to be issued:	2.5	3.1	3.9	4.9
Total number of shares:	12.5	15.6	19.5	24.4
Pre-money Price per Share ($)	1.0	3.2	6.4	20.5
Liquidation preferences multiple	1.5	1.5	1.5	1.5
Minimum return at exit ($M)	3.8	15.0	37.5	150.0

Ownership Structure (Post-Series C)	
Seed	10.2%
Series A	12.8%
Series B	16.0%
Series C	20.0%
Total VC Shareholding	**59.0%**
Founders' Shareholding	**41.0%**

Exit value ($M)	**Investor return ($M)**	**Founders ($M)**
100	100	0
150	150	0
200	200	0
250	206	44
300	206	94
350	207	143
400	236	164
450	266	184
500	295	205

But are VCs always right?

Apple

Bessemer Venture Partners

Bessemer had the opportunity to invest in pre-IPO secondary stock in Apple at a $60M valuation. Neill Brownstein called it "outrageously expensive."

Ebay

Bessemer Venture Partners

"Stamps? Coins? Comic books? You've GOT to be kidding," thought David Cowan. "No-brainer pass."

PayPal

Bessemer Venture Partners

David Cowan passed on the Series A round. Rookie team, regulatory nightmare, and, 4 years later, a $1.5 billion acquisition by eBay.

Intel

Bessemer Venture Partners

Pete Bancroft never quite settled on terms with Bob Noyce, who instead took venture financing from a guy named Arthur Rock.

Instacart

versionone

We talked to Instacart's founder Apoorva Mehta after the company went through YC in 2012. Anyone who has ever spent time with Apoorva knows how smart he is, but we were too focused on how how operationally tough it would be to build up such a shopping delivery network. Instacart became a public company with a market cap of over $10B in September 2023.

Facebook

Bessemer Venture Partners

Jeremy Levine spent a weekend at a corporate retreat in the summer of 2004 dodging persistent Harvard undergrad Eduardo Saverin's rabid pitch. Finally, cornered in a lunch line, Jeremy delivered some sage advice, "Kid, haven't you heard of Friendster? Move on. It's over!"

Tesla

Bessemer Venture Partners

In 2006 Byron Deeter met the team and test-drove a roadster. He put a deposit on the car, but passed on the negative margin company telling his partners, "It's a win-win. I get a great car and some other VC pays for it!" The company passed $30B in market cap in 2014. Byron paid full price for his Model X.

Airbnb

Bessemer Venture Partners

Jeremy Levine met Brian Chesky in January 2010, the first $100K revenue month. Brian's $40M valuation ask was "crazy," but Jeremy was impressed and made a plan to reconnect in May. Unbeknownst to Jeremy, $100K in January became 200 in February and 300 in March. In April, Airbnb raised money at 1.5X the "crazy" price. In December 2020, Airbnb went public at a $47 billion valuation.

Google

Bessemer Venture Partners

David Cowan's college friend rented her garage to Sergey and Larry for their first year. In 1999 and 2000 she tried to introduce Cowan to "these two really smart Stanford students writing a search engine." Students? A new search engine? In the most important moment ever for Bessemer's anti-portfolio, Cowan asked her, "How can I get out of this house without going anywhere near your garage?"

Shopify

versionone

We had the chance to invest in the Series B of Shopify in 2011. This was not our early-stage sweet spot and the $100M valuation felt rich. Nearly 15 years and $135B later, Tobi and Harley built Shopify into the defining e-commerce platform and one of the biggest SaaS success stories ever.

Exit Case Study: Think Silicon

A Patras Science Park spinout acquired by Applied Materials (NASDAQ: AMAT)

The Origin (2007)

Two engineers in Patras, George Sidiropoulos and Iakovos Stamoulis, saw an unserved market: ultra-low power GPUs for tiny displays. Iakovos had registered the trademark "Think Silicon" back in 2000.

The Valley of Death (2007–2018)

For a decade, Think Silicon made no profits. They survived on EU research programs (~$3M) and relentless cost discipline. By 2018 they hit a tipping point — firing half their engineers to stay alive for a few more months.

The Catalyst (2019)

Two things changed everything. First, Metavallon VC led a €600K seed round, validating the technology commercially. Second, Kostas Mallios, a Greek diaspora executive who had moved from Microsoft to Applied Materials, looked at Greece when AMAT needed GPU IP.

The Exit (April 2020)

Less than a year after its seed round, Think Silicon was acquired by Applied Materials (NASDAQ: AMAT) — a $23B+ semiconductor giant with 22,000 employees. It was the largest deep-tech exit in Greek history.

Lessons for Engineers

01 Survival Precedes Success

Think Silicon spent 11 years without VC. Lean operations kept them alive until the market caught up.

02 Networks Are Infrastructure

A Greek diaspora exec connected Patras to Silicon Valley. The Innoetics → Samsung chain led directly to Applied Materials.

03 VC as Catalyst, Not Crutch

Metavallon's €600K didn't build the technology — it validated it commercially and triggered the acquisition.

04 Deep Tech Needs Patience

The founders created a market that didn't exist. The first smartwatch GPU had no category when they started.

"This deal puts Greece on the map as a source market for deep tech." — Myrto Papathanou, Metavallon VC

Why do startups fail? Funding alone is not enough

● Primary cause ● Contributing factor

Company	Sector	Founded	Failed	Raised	Tech that never works	Broken unit economics	Market timing	Regulatory traps	Governance & trust collapse	Outcompeted by rival
Northvolt	EV Batteries	2016	2024	$13.8B	●	○				○
WeWork	PropTech / Offices	2010	2023	$12.8B		○			●	
Quibi	Streaming / Media	2018	2020	$1.75B			●			●
Solyndra	Solar Energy	2005	2011	$1.2B+		●				●
23andMe	Genomics / Health	2006	2025	$1.1B+				○	●	
Lilium	Air Taxi (eVTOL)	2015	2023	$1B+	●	○		○		
Jawbone	Wearables	1999	2017	$930M+						●
Better Place	Electric Vehicles	2007	2013	$900M+	○	●	○			
Webvan	Grocery Delivery	1996	2001	$800M+		●	●			
Fisker	Electric Vehicles	2016	2024	$655M+	○	●		○		
Zume Pizza	Robotics / FoodTech	2015	2020	$500M	●	○				
Builder.ai	AI / Dev Tools	2016	2025	$445M	●				●	
Eaze	Cannabis Delivery	2011	2024	$255M		○		●	○	
Tally	Fintech	2015	2023	$172M		○		●	○	
Ghost Autonomy	Autonomous Vehicles	2017	2024	$220M			●			○

Across most failures, a few patterns repeat

Broken unit economics is the most pervasive underlying cause

Timing and competition often travel together

Regulatory traps skew toward specific verticals