



Book Review
Zero to One
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On what important truth do very few people agree with you?

Chapter 1: The Challenge of the Future

- Technology is any new and better way of doing things.
- Technology is 0 to 1. Globalization is 1 to n.
- Technology matters more than globalization.

Chapter 2: Party like it's 1999

- 18 months of dot-com mania at the decade's end. Sep 1998 – Mar 2000
- Lessons:
 1. It's better to risk boldness than triviality
 2. A bad plan is better than no plan
 3. Competitive markets destroy profits
 4. Sales matter must as much as product

Chapter 3: All Happy Companies are Different. *What valuable company is nobody building?*

- Airlines are perfect competition. The industry is huge, and no one is making money. Google has a monopoly, and they're highly profitable.
- Creative monopolists give customers more choices by adding entirely new categories of abundance to the world. Creative monopolies aren't just good for the rest of society; they're powerful engines for making it better.
- Apple: customers were happy to finally have the choice of paying high prices to get a smartphone that actually works.
- Competition as an ideal state is a relic of history. Economists treated individuals and businesses as interchangeable atoms, not as unique creators.
- Equilibrium means stasis, death.
- In the real world outside economic theory, every business is successful exactly to the extent that it does something others cannot do.
- Monopoly is the condition of every successful business.

Chapter 4: The Ideology of Competition

- People believe competition is healthy because it's "the" ideology.
- Schools are designed to be competitive through uniform instruction and grading. Make students comparable. Sort, rank. Losing in this system can be a hidden victory. Drop out & do something real, like create Paypal or Microsoft.
- Marx: people fight because they're different. Shakespeare: people fight because they're similar. In business, Shakespeare is right.
 - Microsoft vs. Google. Meanwhile Apple won by being different.
 - Smartphone credit card swipe devices like Square
- "Imitative Competition" may partially explain why individuals with Asperger's-like social ineptitude seem to be at an advantage in Silicon Valley today: if you're less sensitive to social cues, you're less likely to do the same things as everyone else around you.
 - Example: online pet store market

- Winning is better than losing, but everybody loses when the war isn't one worth fighting.
- Weird & distracting rivalries: Larry Ellison vs. Tom Siebel, both at Oracle. Oracle intentionally accumulates enemies. Personal attacks from Informix; massive accounting scandal.
- His merger with X.com, an almost identical rival. When you're doing the same thing, it makes more sense to work together than compete.
- If you must fight, fight to win. Either don't throw any punches, or strike hard and end it quickly.
- Hamlet: "true heroes will fight for things that don't matter." Pick your battles. "This twisted logic is part of human nature, but it's disastrous in business."
- "If you can recognize competition as a destructive force instead of a sign of value, you're already more sane than most."

Chapter 5: Last Mover Advantage

- New York Times vs. Twitter: NYT profitable, T not; T had 12 times NYT's market capitalization because of expected future cash flows.
- The value of a business today is the sum of all the money it will make in the future.
- Growth is easy to measure, but durability isn't.
 - Examples: Groupon, Zynga
 - Most important question: In a decade, will this business still be around?
- Four characteristics of a monopoly:
 1. Proprietary Technology
 - Like Google's search algorithms
 - Must be at least 10X better than closest substitute.
 - Clearest way to make 10X improvement is to invent something new. (0 to 1)
 - Paypal shortened payment time by 10 days versus mailing a check.
 - Amazon offers 10X many books as any book store.
 - iPad improved on previous tablet technology 10X.
 2. Network Effects
 - Paradoxically, to work out networking nuances, network effects businesses must start small. Facebook was originally just for Zuckerberg's classmates. After you work out kinks with a small market, then you can scale.
 3. Economies of Scale
 - Cost of making another copy of software is close to zero.
 - Service businesses are difficult to make into monopolies.
 - A good startup should have the potential for great scale built into its first design.
 4. Branding
 - Yahoo's mistake: "people then products then traffic then revenue." The products must be there, and they must be good.

Building a Monopoly:

- Start small & monopolize. Easier to dominate a small market than a large one.
 - Paypal started with Ebay.
 - Amazon started with books.
 - Perfect target market is a small group of particular people concentrated together and served by few or no competitors.
- Scaling up
 - Gradually expand into related & slightly broader markets (Amazon example).
 - eBay started with Beanie Baby nuts.
 - Hidden obstacles to scaling:
 - Qualitative differences. With eBay, distinct products are auctionable; fungible products aren't.
 - Sequencing markets correctly is underrated. It takes discipline to expand gradually & in the right order. The best companies specify this order in their founding narrative.
- Don't disrupt
 - PCs disrupted mainframes; smart phones disrupt PCs.

- But don't be trendy and new for the sake of it.
- The act of creation is far more important than the old industries that might not like what you create.
- Opposition & disruption aren't enough; they're negative. Be positive. Focus on what you're creating, not on what you're disrupting.
- Disruptors are people like Napster, who look for trouble and find it.
- The last will be first
 - What really matters is generating cash flows in the future, so being the first mover doesn't do you any good if someone else comes along and unseats you.
 - The last mover makes the last great development in a specific market, and enjoys years or decades of monopoly profits.
 - Dominate a small niche & scale up from there toward an ambitious long-term vision.
 - Before everything else, study the endgame.

Chapter 6: You Are Not a Lottery Ticket (Fatalism/Determinism)

- Malcom Gladwell, Warren Buffett, Jeff Bezos, Bill Gates: “strategically humble.”
- Jack Dorsey (Twitter, Square founder): “Success is never accidental.”
- Emerson: Shallow men believe in luck/circumstance; strong men believe in cause & effect.
- Roald Amundson: Victory awaits him who has everything in order – luck, people call it.
- (Luck is when preparation meets opportunity.)
- “Indefinite attitudes to the future explain what's most dysfunctional in our world today.”
- Students try to appear “omnicompetent” by hoarding extracurricular activities. Come what may, they're ready – for nothing in particular.
- A definite person determines the one best thing to do and then does it. This is not what young people do today, because everyone around them has long since lost faith in a definite world.
- 4 quadrants:
 - Indefinite Pessimism
 - Definite Pessimism
 - Definite Optimism
 - Indefinite Optimism (Baby Boomers)
 - Instead of working for years to build a new product, indefinite optimists rearrange already-invented ones.
 - A whole generation (Gladwell, 1963) learned from childhood to overrate the power of chance and underrate the importance of planning.
 - Our Indefinitely Optimistic World
 - Indefinite Finance
 - More bankers & lawyers
 - Bright college graduates head to Wall Street precisely because they have no real plan for their careers.
 - Diversification becomes extremely important. Hedge bets, keep options open.
 - What happens when successful entrepreneurs sell their companies?
 - Founders don't know what to do with it, so they give it to a large bank.
 - Bankers don't know, so they diversify.
 - Institutional investors don't know, so they diversify too.
 - Companies try to increase share price by generating free cash flows by issuing dividends or buying back shares.
 - The cycle repeats.
 - Indefinite Politics
 - Through modern polling, politicians are mostly attuned to what the public thinks at every moment.
 - We're more fascinated by predictions of what the country will be thinking in a few weeks than by visionary predictions of how the country will appear in 10-20 years.
 - The government mainly just provides insurance.
 - Since 1975, entitlement spending has consistently exceeded discretionary spending.

- Indefinite Philosophy
 - Philosophy of ancient world was pessimistic: Aristotle, Plato, Epicurus, Lucretius all accepted strict limits on human potential.
 - Spencer, Hegel, & Marx all believed in progress.
 - Late 20th century, indefinite philosophies:
 - John Rawls
 - Robert Nozick
 - Neither had concrete ideas about the good society; both focused on process.
 - Today we exaggerate differences between political parties because almost everyone shares an indefinite attitude.
 - In Philosophy, Politics, & Business, arguing over process has become a way to endlessly defer making concrete plans for a better future.
- Indefinite Life
 - Fountain of Youth
 - Penicillin discovered by accident
 - Now pharma companies search randomly through molecular combinations, hoping to find a hit.
 - Eroom's Law: every 9 years since 1950, the number of new drugs approved per billion dollars spent on R&D has halved.
 - Researchers experiment with things that might just work instead of refining theories about how the body's systems operate. (Underlying presuppositions seem to be random chaos, not design.)
 - Has the genuine difficulty of biology become an excuse for biotech startups' indefinite approach to business in general?
 - Starts with professors who often become part-time consultants instead of full-time employees.
 - Then everyone imitates the professors' indefinite attitudes.
 - Indefinite optimism may pose an even greater challenge than regulation to the future of biotech.
- Is Indefinite Optimism Even Possible?
 - U.S. Households are saving almost nothing.
 - U.S. Companies are letting cash pile up on their balance sheets without investing in new projects because they don't have any concrete plans for the future.
 - Definite optimism works when you build the future you envision.
 - Definite pessimism works by building what can be copied without expecting anything new.
 - Indefinite pessimism works because if you're a slacker with low expectations, they'll probably be met.
 - Indefinite optimism, seems inherently unsustainable: how can the future improve if no one plans for it?
 - Progress without planning is "evolution."
 - In recent years Darwinian metaphors have become common in business. "Survival of the Clickiest."
 - Make nothing more than a minimum viable product, then iterate your way to success.
 - Iteration without a bold plan won't take you from 0 to 1.
 - Why should you expect your own business to succeed without a plan to make it happen?
- The Return of Design
 - The most important thing to learn from Steve Jobs has nothing to do with aesthetics. The greatest thing Jobs designed was his business.
 - Jobs saw that you can change the world through careful planning, not by listening to focus groups or by copying others' successes.
 - **In our indefinite short-term world , long-term planning is often under-valued (79).**
 - In a world where people see the future as random, a business with a good definite plan will always be underrated.

- “We have to find our way back to a definite future, and the Western world needs nothing short of a cultural revolution to do it.”
 - Displace John Rawls
 - Persuade Malcolm Gladwell.
 - Drive pollsters from politics.
 - The startup is the largest endeavor over which you can have definite mastery.

Chapter 7: Follow the Money

- Einstein's false quote: compound interest the eighth wonder of the world. He continues to earn interest beyond the grave for things he never said.
- Disproportionality: the 80-20 rule
- The Power Law of Venture Capital
 - Most venture-backed companies fail.
 - The error lies in expecting that venture returns will be normally distributed. Results in a “spray and pray” portfolio strategy of diversification that yields mediocre returns in which losses cancel gains.
 - The biggest secret in venture capital is that the best investment in a successful fund equals or outperforms the entire rest of the fund combined. Implies 2 strange rules:
 - Only invest in companies that have the potential to return the value of the whole fund.
 - Because rule #1 is so restrictive, there can't be any other rules.
 - VCs must find the handful of companies that will successfully go from 0 to 1 and then back them with every resource.
 - Every company in a good venture portfolio must have the potential to succeed at a vast scale.
- Why people don't see the Power Law
 - It only becomes clear over time.
 - The difference between exponential & linear growth is unclear when it's happening. Hindsight is 20-20.
 - VCs want to fix problems. They spend more time on problematic companies than they spend on the most obviously successful ones.
 - VC investment accounts for less than .2% of GDP. But the results of those investments disproportionately propel the whole economy. Venture-backed companies created 11% of all private sector jobs. Annual revenues are 21% of GDP.
 - The dozen largest tech companies were all venture-backed. Together, they're worth >\$2T, more than all other tech companies combined.
- What to do with the Power Law
 - The Power Law is important to everyone, because everyone is an investor.
 - Conventional wisdom says, diversify. The more you dabble, the more you're supposed to have hedged against the uncertainty of the future.
 - But life isn't a portfolio. You can't diversify your own life by keeping dozens of equally possible careers in ready reserve. You must commit.
 - Everyone who passes through the American school system learns *not* to think in power law terms.
 - “It doesn't matter what you do, as long as you do it well.” FALSE. What you do matters.
 - Focus relentlessly on something you're good at doing.
 - Before that, think hard about whether it will be valuable in the future.
 - Too many people are starting their own companies today.
 - People who understand it will hesitate more than others about founding a new venture, knowing how tremendously successful they could become by joining the very best company while it's growing rapidly.
 - Differences between companies will dwarf differences within them.
 - The most important things are singular:
 - One best market
 - One best distribution strategy
 - One best moment
 - You can't trust a world that denies the Power Law, so what's most important is rarely obvious. It

might even be secret.

Chapter 8: Secrets

- Pythagorean Theorem was a secret; now it's a conventional truth – important, but it won't give you an edge because it's not a secret.
- On what important truth do very few people agree with you?
- What valuable company is nobody building?
- Every correct answer is necessarily a secret.
- If there are many secrets left in the world, there are probably many world-changing companies yet to be started.
- Why aren't people looking for secrets?
 - Most people act as though there were no secrets left to find.
 - Unibomber Ted Kaczynski:
 - Divided human goals into 3 groups:
 - Easy
 - Hard
 - Impossible
 - Modern people are depressed because all the world's hard problems have already been solved.
 - Kaczynski's loss of faith in the technological frontier is all around us.
 - If everything worth doing has already been done, you might as well feign an allergy to achievement and become a barista.
 - Religious fundamentalism
 - Allows no middle ground for hard questions. There are easy truths that children are expected to rattle off, and there are the mysteries of God which can't be explained.
 - In between – the zone of hard truths – lies heresy.
 - Environmentalism
 - Free marketeers
 - Geography: there are no blank spaces any more. Everything has been mapped.
 - Four social trends have conspired to root out belief in secrets:
 - Incrementalism: we only have permission to improve little by little.
 - Risk aversion: the fear of being wrong. By definition, a secret hasn't yet been vetted by the mainstream.
 - The prospect of being lonely but right is already hard.
 - The prospect of being lonely and wrong is unbearable.
 - Complacency: why search for new secrets if you can comfortably collect rents on everything that has already been done?
 - Flatness: globalization = the world is one homogeneous, highly competitive marketplace. Doubt: if it were possible to discover something new, wouldn't someone from the faceless global talent pool of smarter & more creative people have found it already?
 - Upside: today you can't start a cult.
- The world according to convention
 - We've already answered all great questions.
 - Perfect understanding of justice
 - Faith in efficient markets. But financial bubbles prove that markets can be inefficient. And the more people believe in efficiency, the bigger the bubbles get. Examples:
 - Dot-com bubble of 1999
 - Real estate bubble of 2008
 - Sad case of HP
- A case for secrets
 - There are many more secrets left to find, but they will yield only to relentless searchers.
 - When companies like Facebook are undervalued, it's because of secrets.
- How to find secrets
 - 2 kinds: secrets of nature, & secrets about people.

- 2 questions:
 - What secrets is nature not telling you?
 - What secrets are people not telling you?
- Secrets about people are relatively underappreciated.
 - What are people not allowed to talk about?
 - What is forbidden or taboo?
- Sometimes looking for both natural & human secrets lead to the same truth.
- Are there any fields that matter but haven't been standardized and institutionalized?
 - Nutrition: the food pyramid with grains at the bottom is bogus.
- What to do with secrets
 - Don't publish
 - Form a company & tell them.
 - Every great business is built around a secret.
 - A great company is a conspiracy to change the world.

Chapter 9: Foundations

- "Thiel's Law": *a startup messed up at its foundation cannot be fixed.*
- Beginnings are special:
 - Cosmos
 - Country, constitution
- Founding Matrimony: how well founders know each other & work together matters just as much as technical abilities & complementary skill sets.
- Ownership, Possession, & Control
 - Everyone should work well together.
 - Structure is necessary because men aren't angels.
 - Ownership: who legally owns the company's equity? Founders, employees, investors.
 - Possession: who actually runs the company on a day-to-day basis? Managers, employees
 - Control: who formally governs the company's affairs? Board of directors
 - Misalignment: DMV. We the people own it, but our ownership is fictional. Clerks & petty tyrants. DMV is misaligned with everybody.
 - Big corporations: CEO has perverse incentives.
 - Early stage startups: founders have both ownership & possession.
 - Most conflicts erupt between founders & investors on the board. Ownership vs. control.
 - In the boardroom, less is more. Board of 3 is ideal; never more than 5.
 - But government regulations mandate at least 9.
 - Nonprofits have large boards, but they're ineffectual. They just provide cover for whichever microdictator actually runs the organization.
 - If you want that kind of free rein from your board, blow it up to giant size.
 - If you want an effective board, keep it small.
- On the bus or off the bus
 - Prefer full-timers.
 - Hiring consultants doesn't work.
 - Avoid working remotely because misalignment can creep in when colleagues aren't together full-time in the same place, every day.
- Cash is not king
 - A company does better the less it pays its CEO. Keep it < \$150K.
 - High pay incentivizes a CEO to defend the status quo.
 - A cash-poor executive will focus on increasing the value of the company as a whole.
 - Aaron Levie, CEO of Box, lived 2 blocks away from HQ in a 1 bedroom apartment with a mattress.
 - Any kind of cash is more about the present than the future.
- Vested Interests
 - Giving everyone equal shares of equity is usually a mistake.
 - Giving different amounts seems unfair.

- Keep details secret
- Most people don't want equity at all.
- Equity can't create perfect incentives, but it's the best way for a founder to keep everyone in the company broadly aligned.
- Extending the founding
 - Founding lasts as long as a company is creating new things, and it ends when creation stops.
 - If you get a founding moment right, you can do more than create a valuable company; you can create a company that creates, extending its founding indefinitely.

Chapter 10: The Mechanics of Mafia

- Ideal work environment?
- Without substance, perks don't work.
- No company “has” a culture; every company “is” a culture. Culture doesn't exist apart from the company itself.
- “Paypal Mafia”:
 - Elon Musk → SpaceX & Tesla Motors
 - Reid Hoffman → LinkedIn
 - Steve Chen, Chad Hurley, & Jawed Karim → Youtube
 - Jeremy Stoppelman & Russel Simmons → Yelp
 - David Sacks → Yammer
 - Peter Thiel → Palantir
- Taking a merely professional view of the workplace, in which free agents check in and out on a transactional basis is worse than cold; it's not even rational.
- If you can't count durable relationships among the fruits of your time at work, you haven't invested your time well – even in purely financial terms.
- We set out to hire people who would actually enjoy working together.
- Recruiting Conspirators
 - Recruiting should never be outsourced.
 - Why should the 20th employee join your company?
 - The only good answers are specific to your company, so you won't find them in this book. 2 kinds of good answers:
 - Answers about your mission – why you're doing something important that nobody else is doing.
 - Answers about your team – are these the kinds of people I want to work with?
 - Don't fight the perk war.
 - Emphasize the opportunity to do irreplaceable work on a unique problem alongside great people.
- What's under Silicon Valley's Hoodies: everyone at your company should be different in the same way.
- Do One Thing
 - The best thing I did as a manager at PayPal was to make every person in the company responsible for doing just one thing.
 - Defining roles reduced conflict.
 - Internal peace is what enables a startup to survive at all.
 - Internal conflict is like an autoimmune disease.
- Of Cults and Consultants
 - Cults = dogmatism, Consultants = nihilism
 - Cults tend to be fanatically *wrong* about something.
 - People at successful startups are fanatically *right* about something.

Chapter 11: If you build it, will they come?

- Most people underrate sales.
- Hitchhiker's Guide to the Galaxy: the founding of our planet was a reaction against salesmen.
- We underestimate the importance of distribution – everything it takes to sell a product – because we share the same bias as the A Ship & C Ship people in the book.
- “Field of Dreams Conceit” - if you build it they will come.

- Nerds vs. Salesmen
 - In Silicon Valley, nerds are skeptical of advertising, marketing, and sales because they seem superficial & irrational.
 - But advertising matters because it works.
 - Anyone who can't acknowledge advertising's likely effects on one's self is doubly deceived.
 - Nerds are used to what's transparently obvious.
 - Sales is the opposite: an orchestrated campaign to change surface appearances without changing the underlying reality.
 - Seems trivial & dishonest to engineers.
 - What nerds miss is that it takes hard work to make sales look easy.
- Sales is Hidden
 - All salesmen are actors.
 - Sales grandmasters' art is hidden in plain sight.
 - Example: Tom Sawyer & the fence.
 - Sales works best when hidden.
 - Cloaked job titles:
 - Account executive
 - Business development
 - Investment banking
 - Politicians
 - None of us wants to be reminded that we're being sold.
 - Sales ability distinguishes superstars from also-rans:
 - Wall St. "analysts" vs. dealmakers.
 - Rainmakers in law firms
 - College professors who define their fields
 - The most fundamental reason that even businesspeople underestimate the importance of sales is the systematic effort to hide it at every level of every field in a world secretly driven by it.
 - Products DON'T sell themselves.
 - The best product doesn't always win because of sales.
 - It's better to think of distribution as something essential to the design of your product. If you've invented something new but you haven't invented an effective way to sell it, you have a bad business – no matter how good the product.
- How to Sell a Product
 - Customer Lifetime Value (CLV) must exceed Customer Acquisition Cost (CAC).
 - Complex Sales
 - 7 figures or more: close personal attention.
 - Work best when you don't have "salesmen" at all. Buyers want to talk to the CEO.
 - Businesses with complex sales models succeed if they achieve 50% to 100% annual growth.
 - Good enterprise strategy starts small.
 - Personal Sales
 - The challenge is how to establish a process by which a team can move the product to a wide audience.
 - Sometimes the product itself is a kind of distribution. Example: Zocdoc
 - Distribution Doldrums
 - In between Personal Sales (requiring salespeople) and traditional advertising (no salespeople required), there's a Dead Zone: too specialized for advertising to work, & not pricey enough to afford a sales force.
 - This is why small & medium sized businesses don't use tools that bigger firms take for granted.
 - Distribution is the hidden bottleneck.
 - Marketing & Advertising
 - Advertising can work when $CLV > CAC$.
 - Viral Marketing
 - A product is viral if its core functionality encourages users to invite their friends to become users,

- too.
- If every new user leads to more than one additional user, you can achieve a chain reaction of exponential growth.
- The ideal viral loop should be as quick and frictionless as possible, like Youtube videos and kitten pictures.
- Whoever is first to dominate the most important segment of a market with viral potential will be the last mover in the whole market. Example: Paypal solving Ebay's terrible payment problem.
- The Power Law of Distribution
 - One sales method is likely to be far more powerful than every other for a given business.
 - This is counterintuitive for most entrepreneurs, who assume more is more.
 - Most businesses get zero distribution channels to work.
 - Poor sales, rather than bad product, is the most common cause of failure.
 - If you can get just one distribution channel to work, you have a great business. If you try for several but don't nail one, you're finished.
- Selling to Non-Customers
 - You must also sell your company to employees, investors, media.
 - Nerds instinctively mistrust media & make the mistake of ignoring it.
 - Never assume people will admire your company without a PR strategy.
 - What people find & don't find when they Google you will be critical to your success.
- Everybody Sells
 - All of us want to believe that we make up our own minds, that sales doesn't work on us. But it's not true.
 - Everybody has something to sell.
 - Look around: if you don't see any salespeople, you're the salesperson.

Chapter 12: Man and Machine

- Computers are complements for humans, not substitutes.
- The most valuable businesses of coming decades will be built by entrepreneurs who seek to empower people rather than try to make them obsolete.
- Substitution vs. Complementarity
 - Globalization means substitution.
 - The global supply of workers willing to do repetitive tasks for low wages is very large.
 - People also compete to buy the same resources.
 - Peasants want more protein
 - All oligarchs have the same taste in Cristal
 - Technology means Complementarity.
 - People have intentionality. We're less good at making sense of enormous amounts of data.
 - Computers are the opposite. They excel at efficient data processing, but they struggle to make basic judgments.
 - Machines don't demand; all value goes to people.
 - Computers are tools, not rivals.
- Complementary Business
 - Complementarity between computers & humans is a path to building a great business: using a hybrid of algorithms & people to arrest hackers. Man-machine symbiosis.
 - Palantir, 2004. Helped locate Osama bin Laden.
 - CIA & NSA – human & machine.
 - “Advanced software made this possible, but even more important were the human analysts, prosecutors, scientists, & financial professionals without whose active engagement the software would have been useless.”
 - Lawyers
 - Teachers
 - Doctors
 - Recruiters & LinkedIn

- The Ideology of Computer Science
 - Missing the power of complementarity starts in school.
 - Netflix recommendations & Google Translate are examples of AI failures, how human engagement is irreplaceable.
 - Big Data is usually dumb data. Today's companies have an insatiable appetite for data, mistakenly believing that more data = more value.
 - We have let ourselves become enchanted by big data only because we exoticize technology.
 - (My observation: "I like your money and I don't like you, so I'll use technology to distance myself from you and get your money.")
 - The most valuable companies in the future will ask, "*How can computers help humans solve hard problems?*"
- Ever-smarter Computers: Friend or Foe?
 - "Strong AI" = computers outwit & replace humans.
 - It's a problem for the 22nd century. Indefinite fears about the remote future shouldn't stop us from making definite plans today.
 - Luddites vs. crazed futurists . . . there's room in between for sane people to build a vastly better world for decades ahead.

Chapter 13: Seeing Green

- \$50B investment into Cleantech didn't work. Example Solyndra. More than 40 solar manufacturers went out of business or filed bankruptcy in 2012.
- Most cleantech companies crashed because they neglected one or more of the following seven questions:
 - The Engineering Question: instead of incremental improvement, can you create breakthrough technology?
 - The Timing Question: Is now the right time to start?
 - The Monopoly Question: are you starting with a big share of a small market?
 - The People Question: do you have the right team?
 - The Distribution Question: Do you have a way not just to create, but to distribute your product?
 - The Durability Question: In 10-20 years, will your market position be defensible?
 - The Secret Question: Have you identified a unique opportunity that others don't see?
- If you don't have good answers to these questions, you'll run into lots of "bad luck" and you will fail.
- If you nail all seven, you'll succeed.
- The striking thing about Cleantech was that people were starting businesses with zero good answers:
 - Engineering: they weren't efficient. Merely incremental improvements often end up meaning no improvement for the end user.
 - Timing: cleantech efficiency improvements had been slow, gradual, linear. No breakthroughs. Entering a slow-moving market can be a good strategy, but only if you have a definite and realistic plan to take it over.
 - Monopoly:
 - Trillion-dollar markets mean ruthless, bloody competition. Better to be a big fish in a small pond.
 - Exaggerating your own uniqueness is an easy way to botch the monopoly question.
 - (My reaction: "Of course you're 'special' – just like everybody else.")
 - You can't dominate a sub-market if it's fictional.
 - Most cleantech founders would have been better off opening a new British restaurant in downtown Palo Alto.
 - People:
 - People running Cleantech were surprisingly non-technical.
 - Salesmen-executives were good at raising capital & getting subsidies; not so good at building products customers wanted.
 - Founders Fund rule: never invest in a tech CEO who wears a suit.
 - Distribution:
 - Cleantech companies forgot about customers.

- Israeli electric vehicle startup Better Place thought the technology spoke for itself. They were wrong.
 - Durability:
 - Plan to be the last mover in your market.
 - “Blame China” chorus in solar
 - Fracking surprised the natural gas biz.
 - Fracking may not be a durable energy solution, but it was enough to doom cleantech companies that didn't see it coming.
- The Secret Question
 - Clean tech industry deluded itself into believing that an overwhelming social need for alternative energy implied an overwhelming business opportunity.
 - Great companies have secrets: specific reasons for success that other people don't see.
- The Myth of Social Entrepreneurship
 - Social entrepreneurs aim to “do well by doing good.” Usually they end up doing neither.
 - Progress isn't hindered by some difference between corporate greed & nonprofit goodness; instead, we're held back by the sameness of both.
 - Doing something *different* is what's truly good for society; and it's also what allows a business to profit by monopolizing a new market.
- Tesla: 7 for 7
- Energy 2.0
 - Tesla's success proves that there was nothing inherently wrong with Cleantech.
 - Globalization will cause increasingly severe energy challenges unless we build new technology.
 - An entrepreneur can't benefit from macro-scale insight unless his own plans begin at the micro-scale.
 - No matter how much the world needs energy, only a firm that offers a superior solution for a specific problem can make money.
 - (My observation: a lot of people don't want to admit that problems exist. “No problem.” “It's all good.” Denial. Until problems are admitted, no solution is possible. Great businesses solve problems; great founders both admit problems and focus on great solutions.)
 - A valuable business must start by finding a niche and dominating a small market.
 - The challenge for entrepreneurs who will create Energy 2.0 is to think small.

Chapter 14: The Founder's Paradox

- Founders possess opposite traits:
 - Rich and poor
 - Charming and rude
 - Nerd & athlete
 - Villain & hero
 - Infamous & famous
 - Inverse normal distribution. Upside-down bell curve.
- Examples
 - Richard Branson
 - Sean Parker of Napster
 - Lady Gaga
- Where mythical kings come from. Bundles of opposites.
 - Oedipus
 - Romulus & Remus
 - Famous & infamous
 - Scapegoats: before execution, they were worshiped like deities.
 - Every king a living god; every god a murdered king
 - Perhaps every modern king is just a scapegoat who has managed to delay his own execution.
- American Royalty
 - Elvis

- MJ
- Britney
- Janis Joplin
- Jim Morrison
- Kurt Cobain
- Amy Winehouse
- Howard Hughes – like Icarus
- Bill Gates
- Steve Jobs
- Lesson for businesses: we need founders.
- Lesson for founders:
 - Be careful
 - Don't overestimate your own power.
 - The single greatest danger for a founder is to become so certain of his own myth that he loses his mind.

Conclusion: Stagnation or Singularity?

- Philosopher Nick Bostrom's four possibilities:
 - Recurrent Collapse – unlikely. Complete annihilation is more probable, in which case there is no future to consider.
 - Plateau – poorer countries catch up with richer ones; competition for scarce resources becomes more fierce; plateau couldn't last indefinitely; stagnation would erupt into conflict; it would eventually collapse into extinction.
 - Extinction – ultimate consequence of plateau.
 - Takeoff – create new technology to make a better future.
 - Singularity, coined by Ray Kurzweil, starts from Moore's Law (# of transistors doubles every 2 years), traces exponential growth trends in dozens of fields, confidently projects future of superhuman AI.
 - What Singularity would look like matters less than the stark choice we face today between Nothing or Something.
 - It's up to us: we can not take for granted that the future will be better, and that means we need to work to create it today.
 - Seize the opportunity to do new things in our own working lives.
 - Everything that is important to us is singular.
 - “Our task today is to find singular ways to create the new things that will make the future not just different, but better – to go from 0 to 1. Only by seeing our world anew, as fresh and strange as it was to the ancients who saw it first, can we both re-create it and preserve it for our future.”