

Business-Engineering-Technology (BET)

BUSI / ENGR 3510

Intro to Business and Engineering

Spring 2021 Course Summary

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INDUSTRIAL &
SYSTEMS
ENGINEERING



THOMAS WALTER CENTER
for TECHNOLOGY MANAGEMENT

at AUBURN UNIVERSITY

Introduction

This deck highlights key elements from BUSI / ENGR 3520 lectures during the Spring 2021 semester. This course is offered as part of the [Business-Engineering-Technology \(BET\) minor at Auburn University](#). It covers these knowledge areas:

- Legal – fundamentals of contracts, entities, and IP
- Financial – revenue models, pricing, and statements / projections
- Planning – product planning, team-building, and management
- Design – industrial design, human factors, and manufacturing considerations
- Marketing – modern marketing technology, strategy, and tactics
- Product Development Process Applied – ideation through prototyping via an iterative, hands-on, semester-length team project including 8 makerspace labs

Over 400 slides of my material have been condensed into less than 100, covering about 30% of the total course content. Six guest lectures, eight makerspace lab sessions, and two site visits support, extend, apply, and authenticate my lectures.

Program Background

- BET is an undergraduate minor for qualifying Auburn students majoring in those programs. All courses are offered as BUSI and ENGR, allowing students from each major the opportunity to include courses in the other on their transcript.
- BET is a product of the [Thomas Walter Center for Technology Management](#) (TWC), which is part of the [Industrial & Systems Engineering department](#) (ISE).
- TWC also offers ISE's [MS of Engineering Management](#) & [Study Abroad](#) programs
- BET includes 6 courses (16cr) over 2 years. The first-year covers a range of topics related to innovation, entrepreneurship, product development, and leadership. Year two adds strategic management, hands-on design, and a capstone project.

3510 Textbooks



Entrepreneurship: The Practice and Mindset

Neck, Neck, and Murray

2nd Edition, SAGE Publications, 2021(?)

Confusing array of digital / print options

Primarily Chapters 9-15

Product Design and Development

Ulrich, Eppinger, and Yang

7th Edition, McGraw Hill, 2020

Good quality Kindle version for \$12 / 33 (rent / buy)

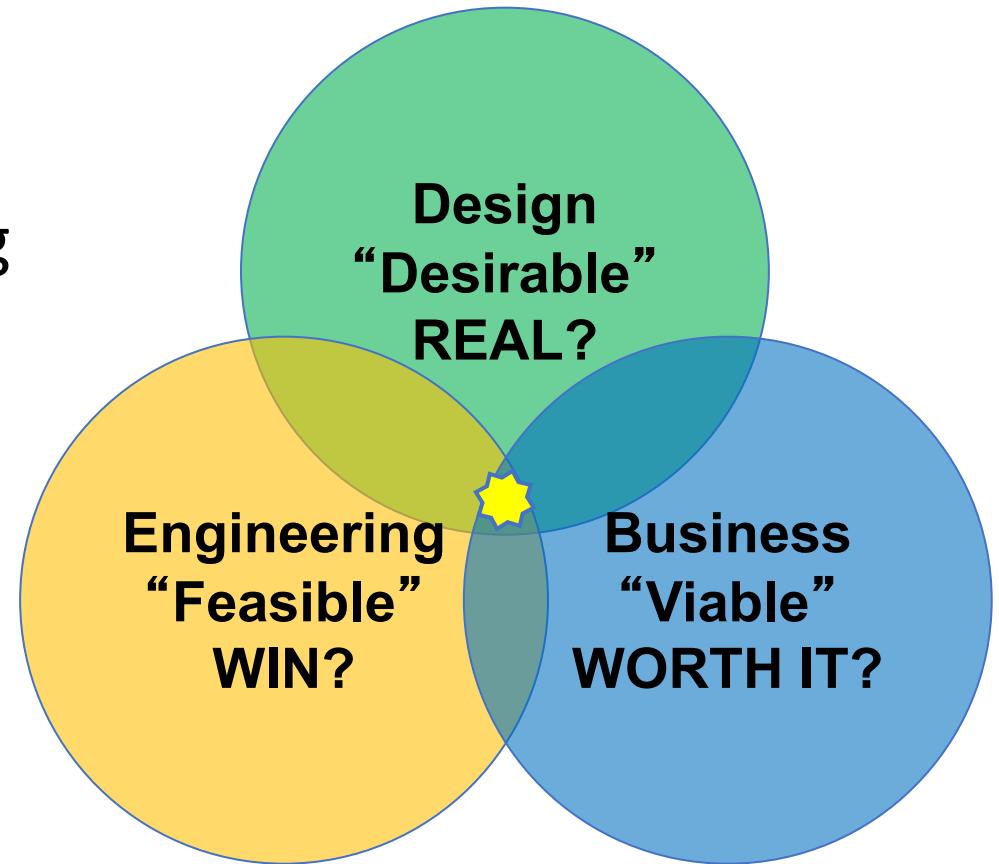
Primarily Chapters 11, 16, 18, 19

BET Year 1 Theme

Making Valuable Things Happen

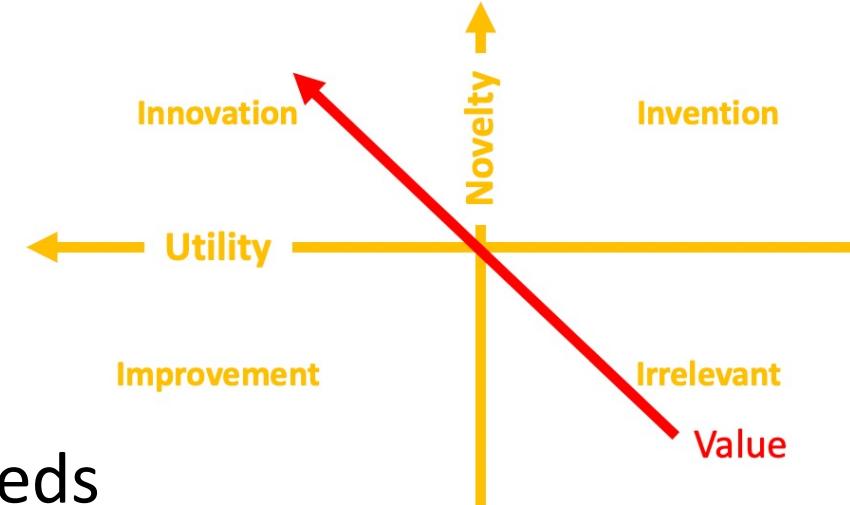
Three Orientations

- Business orientation – Viability
 - Strategy, financial analysis, marketing
 - Is it WORTH IT?
- Engineering orientation – Feasibility
 - Technical and functional design
 - Can we make a solution that WINS?
- Design orientation – Desirability
 - Aesthetics and user experience
 - Does it create REAL appeal?



Connecting Concepts

- Change creates new, unmet Needs
- Organizations seek Opportunities to meet Needs
- An Innovation is a novel and useful response to an Opportunity
- The market, recognizing the Value of an innovation, adopts it



Change → Needs → Opportunities → Innovation → Value

“Making Valuable Things Happen” = Innovation

**Creates new value, builds competitive advantage
Inherently Creative Problem-Solving Process**

Planning and Failure

Neck Chapters 10,11



What is Planning?

- Entrepreneurial Context: A process of envisioning the future for your business, including what you plan to do and how you plan to do it.
 - Crystalize your thoughts
 - Clearly articulate your vision and direction
 - Foundation for business strategy
- Planning is different from a Plan
 - Planning is a verb → action!
 - “Plans are worthless, but planning is everything.” – Eisenhower
 - “If you fail to plan, you are planning to fail.” – Franklin

Types of Plans

- Develop vision, gain clarity, answer important questions, estimate timelines and costs, validate assumptions, set goals, etc. → Planning
- Document findings, share them with a variety of stakeholders for a variety of purposes → Plan
- Variety of Plans for
 - Different stages of idea / business development
 - Different stakeholders (effective communications, tailoring)
 - Different purposes (research, promotion, investment, etc.)
- Not a creative writing exercise!
 - Evidence-based. Document findings, results.

Types of Plans

Path From Idea Generation to Business Plan



Summary of Plans

- Any plan is a work in progress!
- Keep docs current
- Unread plans are worthless
- Business needs vary
- Most important:
 - Do the work
 - Document & share results
 - Use what works
 - Tailor to stakeholder needs

TYPE OF PLAN	PRIMARY AUDIENCE	PURPOSE	OUTPUT
Business Model Canvas	Team members, advisors	Identify gaps and critically evaluate each part of the business and how the components integrate	Completed and tested business model canvas
Business Brief	Friends and family, investors, advisors, other interested stakeholders	To have something in writing to show anybody interested in the business; also good practice for describing the business in a concise way	2- to 3-page typed document that is well formatted and professional looking
Feasibility Study	Team members, maybe early investors	Assess the potential of a new concept; can act as proof that the venture has market potential	10-page typed document that is well formatted and professional looking
Pitch Deck	Early investors, judges of venture competitions, incubators, accelerators	To get the next meeting with a potential investor; to apply to an incubator program; win a competition; get funding	10 to 20 slides, depending on length and purpose of the presentation
Business Plan	Banks, investors	Get funding	25+ page document plus appendices

Plan Writing Tips

- Remove the fluff – be direct and concise
- Define your target audience – effective comms 101
- Be realistic – acknowledge challenges, risks, opportunities to improve
- Be honest about your weaknesses – transparent, accountable
- Focus on your competition – there is never “none”
- Understand your distribution channels – delivery of product / service
- Avoid “Hockey Stick”  – conservative projections based on evidence
- No typos, grammatical errors, inconsistency – unacceptable
- Use visuals – effective comms 101

七転び八起き

Nana korobi ya oki

Fall down seven times, get up eight.

Neck Chapter 11 – ~~Anticipating Failure~~ Resilience and Entrepreneurship

The “Failure” Spectrum

- Failures range from blameworthy to praiseworthy
- Not all bad – some expected and encouraged
- EBE and EM experimental, act → learn, not failures
- Embrace calculated risks, manage your exposure



Fear of Failure

- Most try to avoid failure
- EM: embrace & learn from it
- Helps to...
 - Build a blame-free environ
 - Understand failure spectrum
 - Agree on acceptable risk
 - Know best & worst case outcomes look like
 - Have response plans

10 Signs You Might Have a Fear of Failure

1. Failing makes you worry about what other people think about you.
2. Failing makes you worry about your ability to pursue the future you desire.
3. Failing makes you worry that people will lose interest in you.
4. Failing makes you worry about how smart or capable you are.
5. Failing makes you worry about disappointing people whose opinion you value.
6. You tend to tell people beforehand that you don't expect to succeed in order to lower their expectations.
7. Once you fail at something, you have trouble imagining what you could have done differently to succeed.
8. You often get last-minute headaches, stomach aches, or other physical symptoms that prevent you from completing your preparation.
9. You often get distracted by tasks that prevent you from completing your preparation, which, in hindsight, were not as urgent as they seemed at the time.
10. You tend to procrastinate and “run out of time” to complete your preparation adequately.

Building a Blame-Free Environment

“Environment of Trust”

- It is human nature to want to blame others or bad luck for mistakes
- Not healthy – must accept responsibility and learn from failure
- Good leaders build cultures that encourage people to accept, share, learn from, and recover from failure
 - Communicate clearly what sorts of failures are acceptable
 - Setbacks expected in the process, not punished
 - When people are comfortable reporting failures the team can work together to understand, analyze, and fix / improve
- Good leaders model openness and accountability for team members
 - Recognize limits, admit mistakes, take responsibility, give credit

“Epic” Fails

- Book describes epic fails in terms of magnitude, cause, and circumstances
- Fraud, flagrant mismanagement, etc. deservedly considered Epic
 - Theranos, Elizabeth Holmes, \$9B fraud
 - Taking a large risk with informed, qualified investors and missing despite best effort should not be denigrated
 - Investors know what they are getting into, take many “shots on goal”

one tiny drop
changes
everything.

At Theranos, we're working to shape the future of lab testing. Now, for the first time, our high-complexity CLIA-certified laboratory can perform your tests quickly and accurately on samples as small as a single drop.



Grit – a Tolerance for Failure

- Duckworth – quality enabling people to work hard and sustain interest in their long-term goals
- Incorporates:
 - Courage – not afraid to fail
 - Conscientiousness – work tirelessly toward long-term goals
 - Perseverance – commitment to goals through deliberate practice
 - Resilience – strength to overcome obstacles, recover from failure
 - Excellence – prioritizing improvement over perfection

Be Gritty!

Networks and Team Building

Neck Chapter 8



Networking

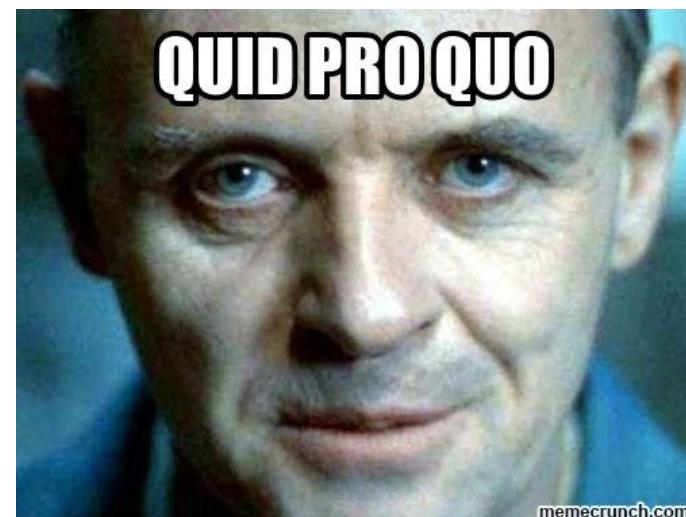
- Making purposeful, valuable, and authentic connections
- Provide access to expertise, support, financing, other connections
- Facilitate mutual learning and information exchange
- Deliberate, continuous process that develops Social Capital
- In decline?
 - Less interaction through traditional community groups
 - Offset by social networking?
- Managing and building network of relationships is essential to successful career

Advantages to Networks

- Private Information
 - Access to information not available to the general public
 - “Insider” → opportunities
 - Increases with level of trust
- Diverse Skillsets
 - Broader perspective, complementary skills and experience
 - Good ideas come from lots of ideas; constructive conflict
- Power
 - Connections ⇔ Influence

Give and Take

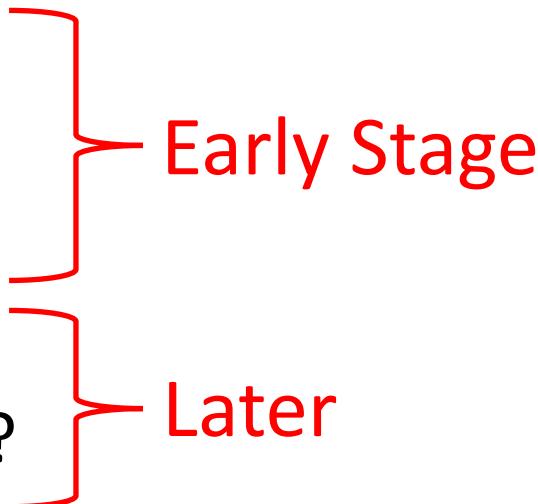
- Cynics view as insincere way of gaining personal advantage
- Two-way game – philosophy of interacting with people by contributing, giving value, sharing and exchanging information
- Net benefit for all – rising tide raises all ships
- Avoid transactional / quid pro quo mindset
- Think of social capital as a “emotional bank account”
 - Make meaningful deposits in your relationships
 - Limit your withdrawals accordingly
- Engine fueled by Generosity + Reciprocity



Founding Team

- Group of people with complementary skills and shared sense of commitment coming together in founding an enterprise (ideally!)
- Goal – build and grow the company, provide economic and social returns for stakeholders
- No “right size” but 2-4 seems to be typical
 - Odd numbers may be an advantage in decision-making
 - Small teams often perform better than solo ventures
- VC's polled re: most important success factor – “the lead entrepreneur and the quality of the team”
- Team members are typically found in the lead entrepreneur’s network

Company Vision / Values

- Interrelated concepts
 - Core Values – what do we believe in?
 - Purpose – why do we exist?
 - Mission – what do we want to achieve?
 - Strategy – how will we realize our mission?
 - Goals – how do we plan to accomplish our strategies?
 - Shared vision for team members to rally around
 - Motivated by Purpose, Mastery, Autonomy (Pink, *Drive*)
 - Answers change – must be revisited frequently
- 
- Early Stage
- Later

Company Vision / Values

- Today, company brands are commonly tied to their espoused values
- Employees & Customers influenced by what companies stand for
 - Employees align with the higher meaning
 - Customers support the mission and/or join the culture
- Authentic reflection of values, or marketing ploy, e.g. “greenwashing”
- Examples? Good or bad trend? Promote unity or fuel division?
- Companies must be very careful with this. Not a To Do item.
 - Better than creating a value statement is to design a company around values.

Value of Diversity

- Demographics like age, gender, race, and ethnicity only one element
- Contribute to deeper personal diversity – career paths and goals, viewpoints, educational backgrounds, mindset, life experiences, etc.
- Homogeneous teams – team members have similar characteristics
 - Advantage – easy to get along
 - Disadvantage – creativity and information processing stifled
- Heterogenous teams – team members have diverse backgrounds and corresponding mix of knowledge, skills, and experience
 - Advantage – aids decision making, expands solution space
 - Disadvantage – communication and collaboration issues

Value of Diversity

- Maslow's Hammer / the Law of the Instrument:
 - When all you have is a hammer, everything looks like a nail.
- Diversity → Cognitive Comprehensiveness
 - Process by which team members examine critical issues with a wide lens and formulate strategies considering diverse approaches, decision criteria, and courses of action.
- Diversity → Constructive Conflict
 - Minimizes impact of Groupthink between stage 2 (norming) and 3 (storming) of team formation – disagreeing on issues is uncomfortable but improves outcomes, builds clarity

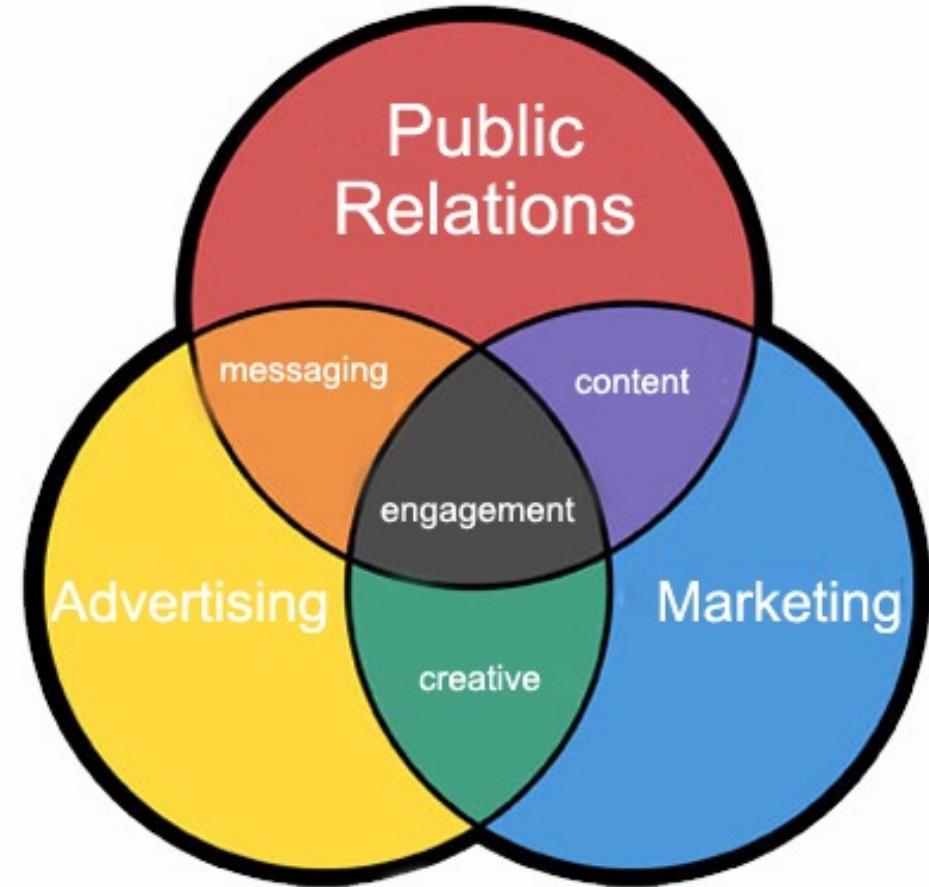
Marketing

Neck Chapter 15



Marketing includes PR, Advertising, Sales

- Public Relations
 - Creating a favorable public image relationship building / mgmt
- Advertising
 - Drawing attention to the product through strategic placement and imagery
- Sales
 - Activities directly related to selling the product



41 Public relations versus marketing versus advertising:

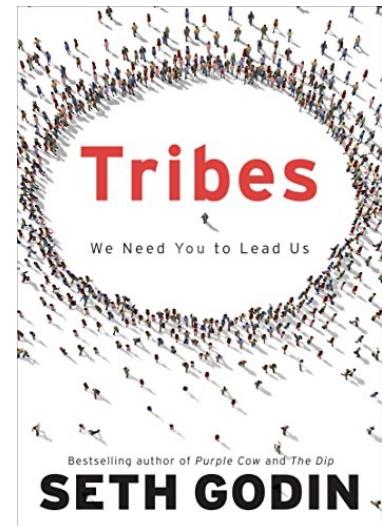
<https://ohiostate.pressbooks.pub/stratcommwriting/chapter/public-relations-vs-marketing-vs-advertising/>

source: www.donmartelli.com

Marketing is used to...

- Prove to customers that you can solve their problem, meet their need
- Deliver a clear message in very noisy marketplaces
 - Lots of info, many sources – buyer is in control
- Tell stories, build community, delivery content, create engagement
- Build trust, learn from customers, create ongoing value
- Create dialog, long-term relationships, deep understanding

**Trends towards more focus on customer than product
Direct interaction, shared values**



Marketing Mix – Four Ps Framework

- Define and differentiate brand
- Evaluate strength, completeness of marketing approach
- Constantly reviewed, adjusted
- Sometimes extended to 7 Ps
 - People - marketing team
 - Packaging - look and feel
 - Positioning – how customers think & feel about product



Building a Brand

- Branding is the process of creating a name, term, design, symbol ... that identifies a product or service and differentiates it from others
 - Associating reputation with name / imagery
- A company's brand is a promise to its customers
- People are more likely to invest in brands that are trustworthy, valued, fashionable, meet needs, connect emotionally (values)
- Integrated into all touch points – website, packaging, promotions, etc.
- Helps define / part of Corporate Identity – visual style of organization

Steps to Successful Branding

- Choose a name – SMILE and SCRATCH Test
- Design a logo – clear, recognizable, suggestive, robust, versatile
- Spread the word – use it in all visual communication
- Know your customer – monitor and survey consumer response
- Become your brand – build a culture that aligns
- Write a tagline – short, simple, clear, memorable
- Always deliver on your brand's promise – meet / exceed expectations
- Be consistent

Social Media Marketing

- Big, deep, fast-moving topic with very sophisticated tools
- Most powerful way to promote products, services, brands
- Valuable way to follow trends, find employees, grow network
- Must be smart, dedicated, savvy to use wisely and productively
 - Subject to whims of the platform – algorithms, rules, tools
 - Easy to chase “vanity metrics” – not actionable, no value
 - Huge time sink, often with low ROI
 - Personal investment and exposure – the face of the brand
 - Dangerous ground – trolls, bullying, #cancelled, etc.



You: why is my balance so low

Bank account: make coffee at home

Bank account: eat the food that's already in the fridge

Bank account: you don't need a cab, it's only three blocks

You: I guess we'll never know

Bank account: seriously?

#MondayMotivation

Posted by u/MBMMaverick 1 year ago   10 

164k Seriously? I paid 80\$ to have Vader locked?
The Pride And Accomplishment Thread

2.8k Comments  Share  Save  Hide  Report

This thread has been locked by the moderators of r/StarWarsBattlefront
New comments cannot be posted

SORT BY **BEST** 

EACCommunityTeam -667820 points · 1 year ago  6  107  65
The intent is to provide players with a sense of pride and accomplishment for unlocking different heroes.

As for cost, we selected initial values based upon data from the Open Beta and other adjustments made to milestone rewards before launch. Among other things, we're looking at average per-player credit earn rates on a daily basis, and we'll be making constant adjustments to ensure that players have challenges that are compelling, rewarding, and of course attainable via gameplay.

Single comment thread. [View all comments](#) 

Getting the Most from Social

- Know what are you trying to accomplish
 - Vision ⇔ Research ⇔ Strategy ⇔ Goals
- Post updates at rates and times that maximize engagement / channel
- Monitor your channels and be responsive
- Know your competition
- Become a technical expert
- Make great content – generous, authentic, personal, high quality
- Be consistent and persistent – results do not come quickly

Industrial Design

Ulrich Chapter 11



Industrial Design

- Design – conceiving and giving form to artifacts that solve problems
 - Aesthetics – principles underlying, guiding the artistic work
 - Function – how it functions and is manufactured
 - Ultimately the value and experience that it provides for users
- Discipline that grew out of the Industrial Revolution
 - Products created by craftsmen now produced quickly, mass scale
 - Designs now used by large number of people
 - Requires new understanding of functionality, aesthetics, ergonomics, durability, manufacturability, cost, marketability

Range of Design Focus

Aesthetic



Ergonomic



User Interface

Industrial Design

- Historically an afterthought
 - Used to style product after technical features determined
 - Products marketed on function alone
 - Yet customers evaluate product more holistically – ergo, style
- Today technology is not enough to ensure commercial success
 - Fierce competition quickly erodes technology advantages
 - ID increasingly important tool for satisfying needs, differentiating
- Balance / unify form and function, fresh and unfamiliar
- Optimize human-machine interface → ergonomics, human factors

10 Principles of Good Design

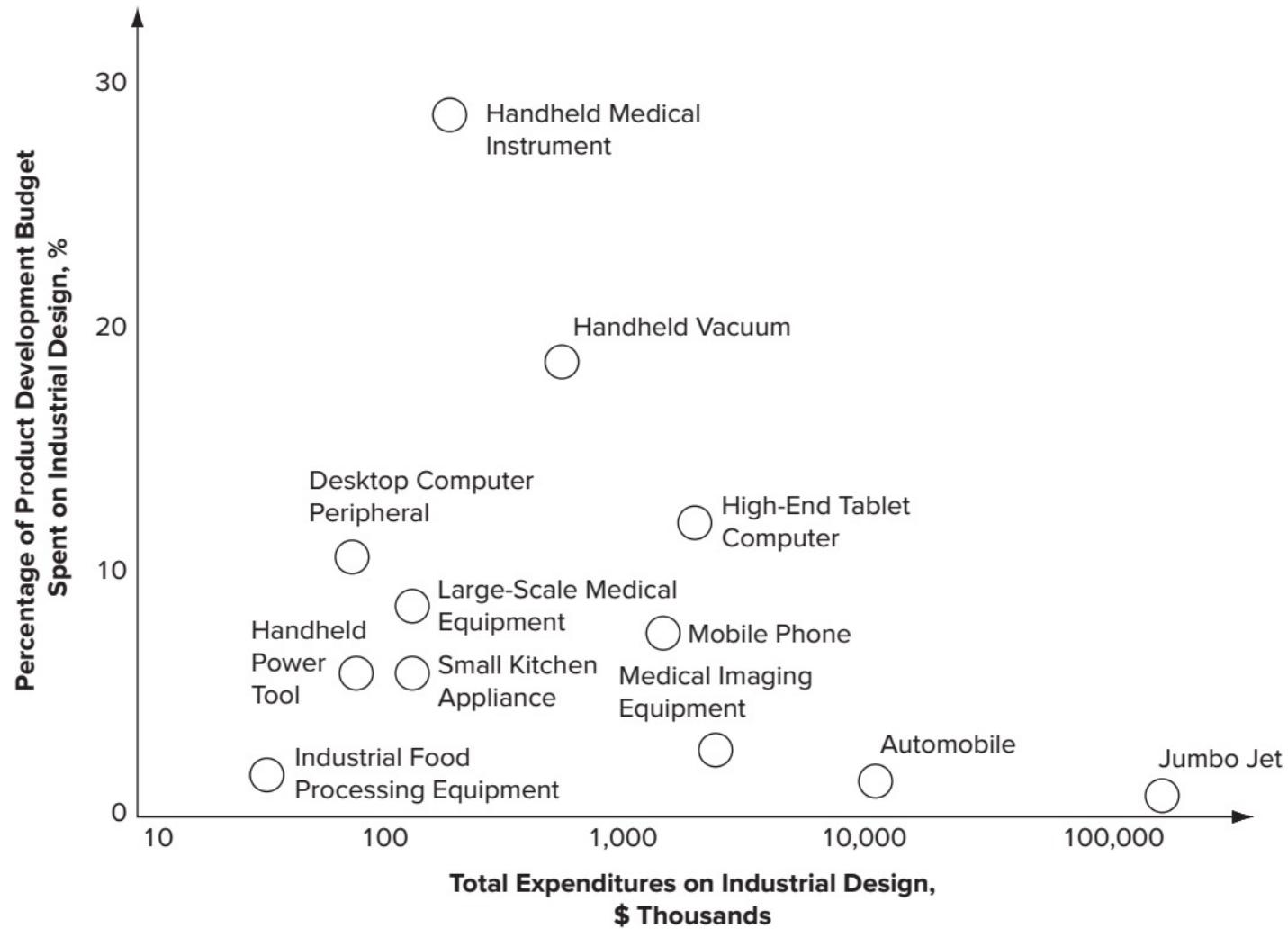
Dieter Rams, 1976

1. Innovative – moves in tandem with technology, not an end in itself
2. Makes a Product Useful – emphasizes utility, avoids distraction
3. Aesthetic – utility and aesthetic correlated, beauty in good design
4. Makes a Product Understandable – at best, self-explanatory
5. Unobtrusive – tools, not decorative objects or works of art
6. Honest – no unmet promises (affordances)
7. Long-Lasting – not fashionable, never feels dated
8. Thorough, Detail Oriented – care and accuracy respect consumer
9. Environmentally Friendly – sustainable product life cycle
10. Minimalistic – focus on essentials, simplicity

Experience Design



Cost of Industrial Design



Value of Industrial Design

Varies by product's User Experience Needs...

- How important is usability?
- How important is ease of maintenance?
- How complex are the interactions required to operate?
- How familiar are those interactions to the user?
- What are the safety issues?



Value of Industrial Design

Varies by product's Aesthetic Needs...

- Is visual product differentiation required?
- How important are pride of ownership, image, and style?
- Will an aesthetically appealing product motivate the team?



Visual Equity

Recognizable Products + Quality Reputation + Consistent Image



IP and General Legal Concepts

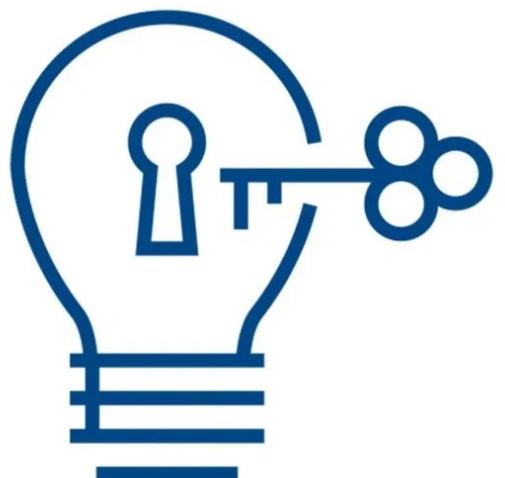
Ulrich Chapter 16
Neck Chapter 14



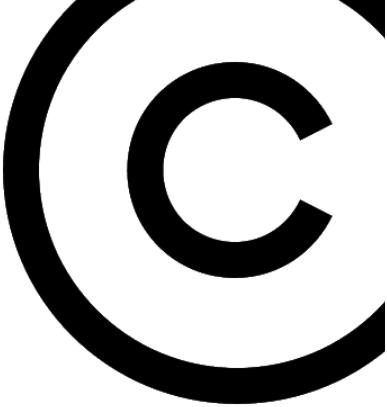
Intellectual Property

- “Legally protectable ideas, concepts, names, designs, and processes associated with a new product.” – Ulrich, p 338
- “Intangible personal property created by human intelligence, such as ideas, inventions, slogans, logos, and processes.” – Neck, p 368
- Analogous to physical property rights – e.g., title to your car
- Property that can’t be protected physically
- Laws protect IP → incentivize innovation

Without legally protected rights for IP owners, would anyone invent?

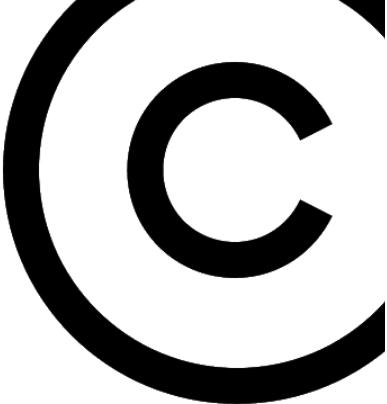


Copyright



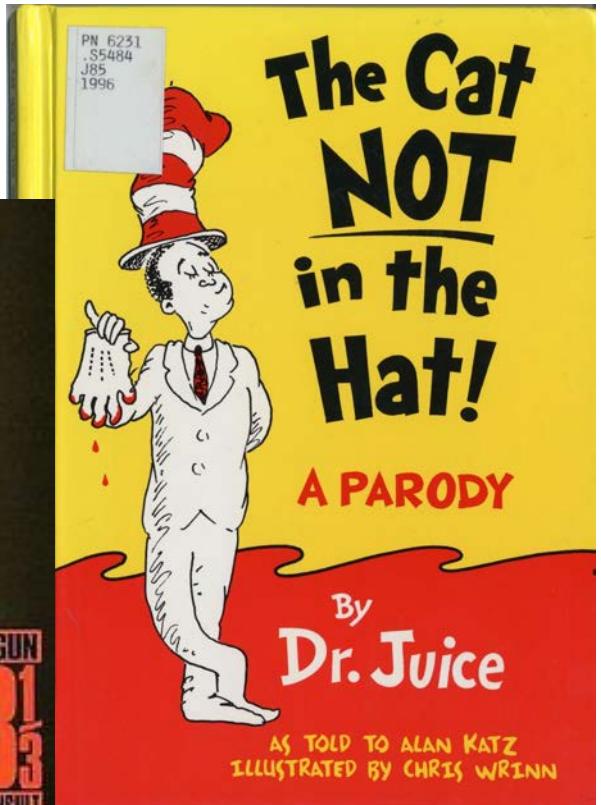
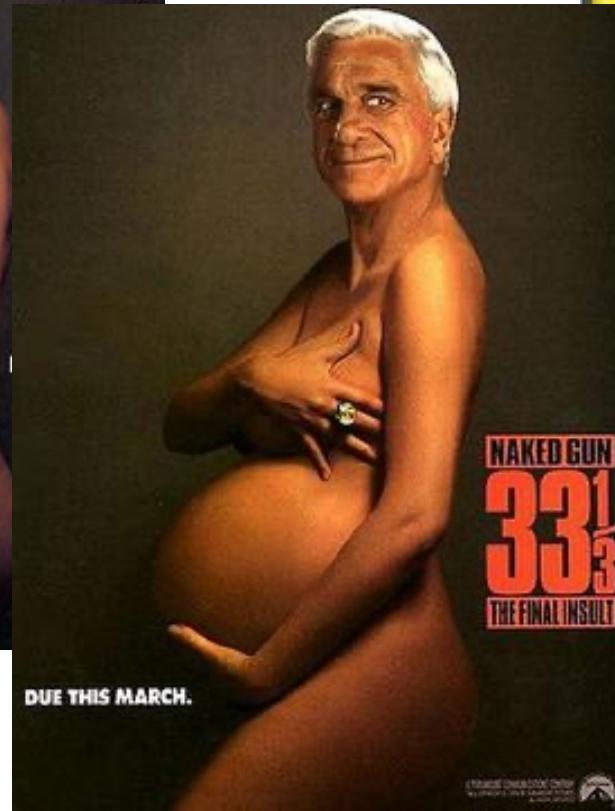
- Exclusive right granted by a government to copy and distribute an original work of expression, including literature, graphics, music, art, entertainment, or software.
- Granted to the author at time of creation, often assigned
- Protects tangible expression of ideas, not the ideas themselves
- Lasts 70 years after last surviving author's death
- Can be claimed registered for additional recourse, but not required
- Since 1989, signing / marking work is not necessary, but beneficial
- Must defend and enforce your copyright

Copyright



- Easiest to obtain, violate – understand “fair use,” get permission
- Infringement options include:
 - Copyright Infringement Notice – warning / demands
 - Cease and Desist
 - Digital Millennium Copyright Act (DMCA) notice and takedown
 - Civil and/or criminal penalties, damages - \$150-250k+, 5 years
- Escalation not required – can go straight to court!
 - “Better to beg forgiveness than ask permission” ill advised
- Enforcement becoming more automated – e.g. YouTube uploads

Fair Use / Parody



Trademark



- Exclusive right granted by a government to use a specific name or symbol in association with a class of products or services.
- Words, “word marks,” and/or symbols
- “Strong” = short, not descriptive, unique; e.g., GOOGLE, XEROX
- Typically brands or product / company names
- Service Mark analogous for services, uses SM and [®]
- In the US, registration possible but not strictly necessary to preserve trademark rights; most other countries require registration
- Establish by attaching TM (unregistered / pending) or [®] to mark in use

Famous Examples



Trademark



- Strive to create trademarks matching available domain names
- Must show use – no squatting
- Legal standard for infringement: unauthorized use that is “likely to cause confusion in the marketplace”
- “Similarity in sound, appearance, and/or meaning may be sufficient to support a finding of likelihood of confusion, depending on the relatedness of the goods and/or services.”*
- Remedies: injunction forcing defendant to cease use, destroy / forfeit articles, financial compensation including profits, damages, costs

*Source: <https://www.uspto.gov/sites/default/files/documents/BasicFacts.pdf>

Patents

- Temporary, limited monopoly granted by the government to an inventor preventing mis-use in exchange for disclosure
 - Excludes others from making, using, selling, or importing the invention without the owner's consent
 - 20 years of protection then “public domain”
- Owned by the inventor(s) unless otherwise assigned
- Offensive rights – can sue for infringement
- Defensive rights – disclosure prevents others from claiming
- Not cheap or fast to secure, regional



Utility Patents

- Allowed for processes, machines, article of manufacture, composition of matter, or new and useful improvement to the same
- Must be useful, novel, and nonobvious
 - Not evident in existing products, pubs, patents (“prior art”)
 - Not clearly evident to those with “ordinary skill in the art”
- About 2/3rds of applications are issued
 - Not necessarily valid – successfully defended
 - Tiny fraction challenged, about half found to be valid
- Not: Laws of nature, physical phenomena, math equations, scientific theories, the human body / genes, **abstract ideas**



Trade Secret

- Information used in a trade or business that offers its owner a competitive advantage and that can be kept secret.
- No public disclosure, no rights conferred
- Protected by vigilance and binding agreements / clauses
 - Employees, contractors, partners
 - Nondisclosure, work-for-hire, noncompete
- Theft may result in civil and criminal penalties



General Legal Concepts

- Law and Tax are “necessary evils,” cannot be ignored
 - “what are the tax / legal implications...”
 - Central to more business decisions than you imagine
 - Seek expert advice, ask informed questions
 - Choosing advisors: generate a list, interview them
 - Many resources available – use reputable ones
 - Clinics, websites, etc. listed in Neck
- Early on “spend most ... on sales and marketing instead of operations and legal issues because revenue solves many problems”**

Legal Structures

- Important early decision – tax and legal implications
 - Structure – allowable owners, number and type(s)
 - Liability – limits and personal exposure
 - Taxation – pass-through or corporate
- Legal “entity” – an organization or being that possesses separate and distinct legal rights and obligations, including tax-related
 - e.g., individuals, businesses, estates, trusts, governments
 - “can, among other things, own property, engage in business, enter into contracts, pay taxes, sue and be sued”

Source: <https://www.law.cornell.edu/wex/entity>

Types of Legal Structures

BUSINESS ENTITY	STRUCTURE	LIABILITY	TAXATION	NOTES
Sole Proprietorship	One owner	Unlimited	Pass-through	
General Partnership	Two or more partners	Unlimited Joint and Several	Pass-through	
C Corporation	Stockholders, directors, officers	Limited	Taxable entity	Potential double tax on dividends
S Corporation	Stockholders, directors, officers	Limited	Pass-through	Subject to eligibility requirements
Limited Liability Company (LLC)	Members, optional board of managers	Limited	Pass-through	May elect to be taxable entity
Limited Partnership	General partners, limited partners	General partners: Unlimited Limited partners: Limited	Pass-through to all partners	Limited partners largely prohibited from management
Limited Liability Partnership (LLP)	Two or more partners	Limited with some restrictions	Pass-through	Generally used only for professional practices
Benefit Corporation (under corporate law)	Stockholders, directors, officers	Limited	May be either C-corp or S-corp, if eligible	Charter sets forth social purpose(s)

Liability Types

- Unlimited
 - Owner(s) not shielded from business liabilities
 - Personally financially liable for debts, guarantees
 - Personally legally liable
- Limited
 - Corporation, not the shareholders, is legally liable for its actions
 - Usually, liability limited to personal investment
- Unlimited Joint and Separate
 - Each partner completely liable, may be required to cover 100%
 - Robust, formal Partnership Agreements essential!

Pass-through Taxation

- “Unlike C-corporations, pass-through firms such as sole proprietorships, partnerships, and S-corporations are not subject to the corporate income tax. Instead the owners include their share of profits as taxable income under the individual income tax.”
- Corporate profits or losses pass through
 - Losses offset other owners’ other income – “tax shelter”
 - Lose money for years → hobby not business, IRS sees all
 - Attractive benefit for startups expecting short-term losses
- Alternative = corporate taxes, “double taxation”

Source: <https://www.taxpolicycenter.org/briefing-book/how-did-tax-cuts-and-jobs-act-change-business-taxes>

Not-for-Profit Status

- Not an alternative to the preceding entity types
- Tax status granted to companies performing functions deemed by Congress to be socially desirable
- Exempts them from income tax per Section 501(c) of the tax code
- Those meeting 501(c)(3) donations are tax-deductible
- Charitable organizations, business / civic leagues, labor organizations, chambers of commerce, religious, educational, scientific institutes

Partnership Agreement

- Essential to any business with more than one owner
- “Contract between two or more business partners that is used to establish the responsibilities, and profit and loss distribution of each partner, as well as other rules about the general partnership”
 - Capital contribution and Profit / Loss Distribution
 - Management and Voting
 - Entity Type and Tax Elections
 - Partner Exit and Dissolution
- Cover “5 Big D’s”: Disinterest, Divorce, Disability, Death, Default

Source: <https://www.lawdepot.com/contracts/partnership-agreement/?loc=US#.YEEH3S1h1eo>

Nondisclosure Agreement

- Contract that outlines confidential information shared by two or more parties. AKA confidentiality agreement or NDA
- Can be Mutual or One-sided
- Mutual – neither party has the right to share the information except as allowed by the agreement
- Typically 1-2 pages, mostly boilerplate (standard language)
- Don't sign or ask for casually, use when necessary
 - How might signing an NDA create exposure for you?
- The book has some good guidelines for use

Work for Hire Agreement

- Work for Hire Doctrine establishes when IP created by employees and contractors is owned / assigned to the employer
- For independent contractors, the work must be specifically ordered for use in one of the nine statutory categories of commissioned works
- For employee, work prepared within the scope of their employment
- Included as clause in employment agreements or part of contract; makes this understanding explicit, mutual

Source: <https://www.copyright.gov/circs/circ09.pdf>

Employment Agreement

- Binding document signed by an employer and an employee, typically during onboarding process
- May be “At-Will” or fixed length
- Spells out the rules, rights and responsibilities for both the employer and the employee, and includes any special obligations
 - Salary, Benefits, and Additional Compensation
 - Job Responsibilities
 - Confidentiality, Title, and Ownership
 - Probation, Performance Reviews, and Termination
 - Other benefits and/or limitations

Revenue and Financial Models

Neck Chapter 9, Sup A
Ulrich Chapter 18



Revenue Model

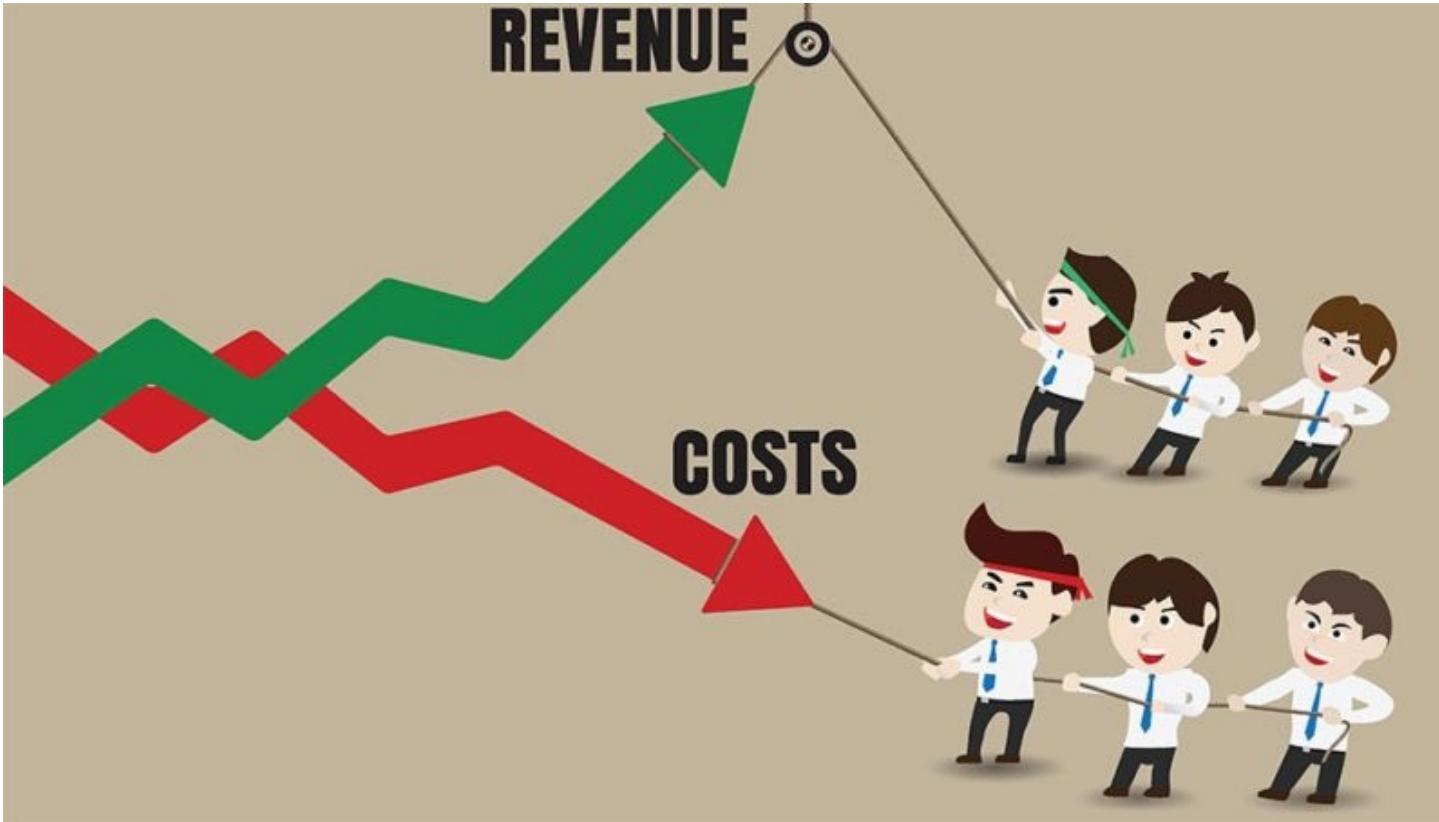
- All ventures generate revenue, income from sale of goods / services
- Revenue Model is the part of the Business Model that identifies how the company will earn revenue and generate profits
 - Profits = Revenues – Costs
- Strategy for generating revenue must address:
 - How much are my customers willing to pay?
 - How many customers do I need?
 - What are my source(s) of revenue? One or more?
 - How much revenue can be generated through each?

Popular Revenue Models

- Unit Sales – revenue per unit sold; unit = piece, time, etc.
- Advertising – by the inch / page (print), minute / second (broadcast), cost per impression / click / action (web)
- Data – sell information collected from users
- Intermediation – broker deals between buyers and sellers
- Licensing – allow others to use your IP
- Franchising – others pay to run an “instance” of your business
- Subscription – periodic payment for continuous access to G/S
- Professional – provide services on time and materials basis
- Utility and Usage – charged based on usage
- Freemium – paid premium content, cross-subsidies, multiparty mkts.

Financial Statements and Projections

- Use your evidence-based understanding of the opportunity to develop projections that prove the venture is worth investment
- Accounting vs Finance – focus on past / future, generally
 - Accounting – documenting past performance
 - Finance – creating projections of future performance; “pro-forma”
- Both use three essential financial statements
 - Income Statement (aka Profit and Loss Statement)
 - Cash Flow Statement
 - Balance Sheet



Profits = Revenues – Costs

Revenue Drivers

Depend on Bus / Fin Model; e.g., Coffee Shop:

- Customers – how many, how much will they spend, how to attract them
- Frequency – how often will they return, how can you incentivize it
- Selling Process – how long does it take, can you up- / cross-sell them
- Price – elastic / inelastic, what would customers be happy to pay more for



Research and Experimentation

Cost Drivers

- Cost of Goods Sold (COGS)
 - The total direct cost of producing a product / offering a service
 - Includes: design, materials, manufacturing, packaging
 - Costs are Variable (per unit produced) or Fixed (direct overhead)
- Operating Expenses
 - Costs of running the business not directly tied to production
 - Includes: rent, utils, admin, salary / benes, marketing, professional services, insurance, transportation, taxes, supplies, shipping

Changing either often leads to tradeoffs

Decisions should be based on understanding of BMC

Income Statement

- Shows revenue, costs, and profit by period, over time
- Measures financial performance by month, quarter, or year

Operating Expenses



Revenue	\$10,000
(-) Cost of Goods Sold	\$4,000
Gross Profit	\$6,000
(-) Sales, General and Administrative	\$2,000
(-) Marketing	\$1,000
(-) Research and Development	\$500
(-) Depreciation and Amortization	\$250
Operating Profit	\$2,250
(-) Interest Expense	\$100
(-) Taxes	\$675
Net Income	\$1,475

Cash Flow Statement

- Tracks the movement of cash into and out of company over time
 - Inflows (source): loans, sales, interest, shares
 - Outflows (use): supplier payments, wages / salaries, distributions
- Two / three parts:
 - Cash generated from operations or profit-making activities
 - Cash generated from investment and financing activities
- Three important outputs:
 - Value of the venture as modeled in today's dollars (NPV)
 - Projected beginning / ending cash on hand over time

Cash Flow Statement

Net Income	\$50,000
(+) Depreciation and Amortization	\$1,000
(+) Sources: Decrease in Assets or Increase in Liabilities	\$12,000
(-) Uses: Increase in Assets or Decrease in Liabilities	(\$15,000)
Increase/(Decrease) Cash from Operations	\$48,000
(-) Net Property Plant and Equipment	(\$8,000)
Increase/(Decrease) Cash from Investments	\$40,000
(+) Increase in Net Borrowing	\$0
(+) Sale of Stock	\$0
(-) Paying of Dividends	\$0
Increase/(Decrease) Cash from Financing	(\$4,000)
Increase/(Decrease) in Cash <i>(Should be equal to cash on the Balance Sheet)</i>	\$36,000

Net Income vs Cash Flow

- Net Income determined in part by accounting principles
 - Includes items that do not represent actual cash in / out
 - e.g. accounts receivable, depreciation
- Cash Flow deals only with real cash transactions
 - Influenced by company operating policies
 - Early stage – don't obsess over financials
 - Focus on controlling costs, maximize revenues
 - Cash is King!



Liquidity, Solvency, and Cash Flow

- Liquidity refers to amount of liquid (cash or cash-equivalent) assets
 - How much cash on hand do you have? Determines “runway”
- Solvency relates to the ratio of debt to assets (liquid or illiquid)
 - What is your net worth? Total assets – Total debt
- Cash Flow is the net amount of cash and cash-equivalents being transferred into and out of a business; revenues vs expenditures
 - Can you pay the bills? Constant battle for many small businesses, often with lots of accounts receivable (open invoices, 45-90 days)
 - What does it mean to be bankrupt?

Funding New Ventures

Neck Chapter 12,13



Bootstrapping

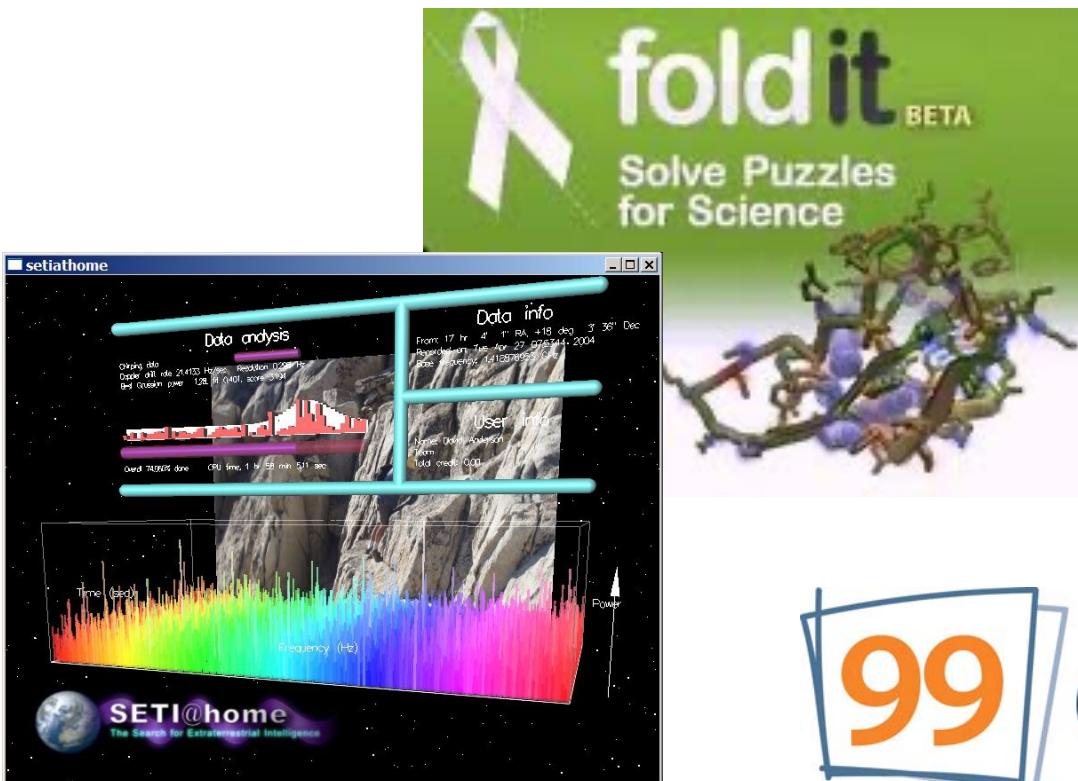
- Likelihood of new business getting formal investment is very small
- One-third of new businesses have begun with less than \$5,000
- Bootstrapping – the process of building or starting a business with no outside investment, funding, or support
- Find creative ways to leverage available resources, minimize expenses
 - “Family, friends, and fools” – treat as a formal loan / investment
 - Savings, credit cards, home equity loans, sell stuff, etc.
 - Sweat equity
- Know goals and affordable loss – if you reach that limit, reassess

Pros and Cons of Bootstrapping

- Pros
 - Maintain most / complete control and autonomy
 - No pressure to repay loans, meet investor requirements
 - Profits go back to owners or reinvested in the business
 - Better negotiation position later – demonstrated commitment, resourcefulness and have reduced risks by developing further
- Cons
 - Hard to do, greater personal risk involved
 - Lacks network benefits of equity – contacts, expertise, influence

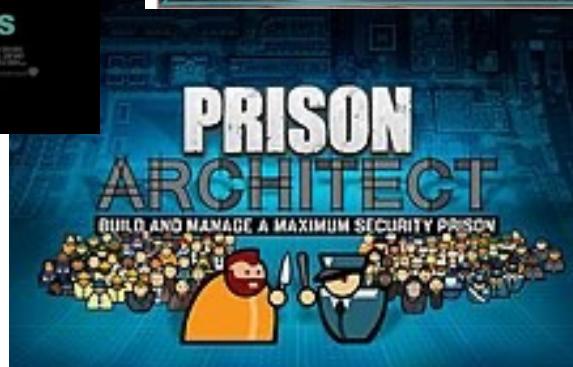
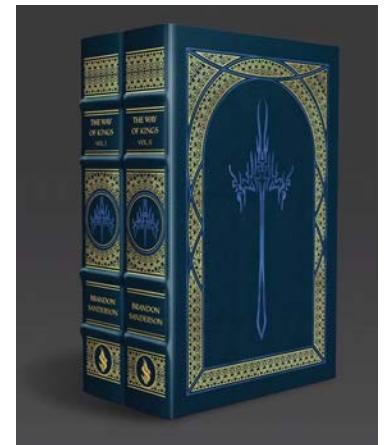
Crowdsourcing

Using the internet attract, aggregate, and manage inexpensive or even free labor from enthusiastic customers and like-minded people



Crowdfunding

The process of raising cash for a new venture from a large audience

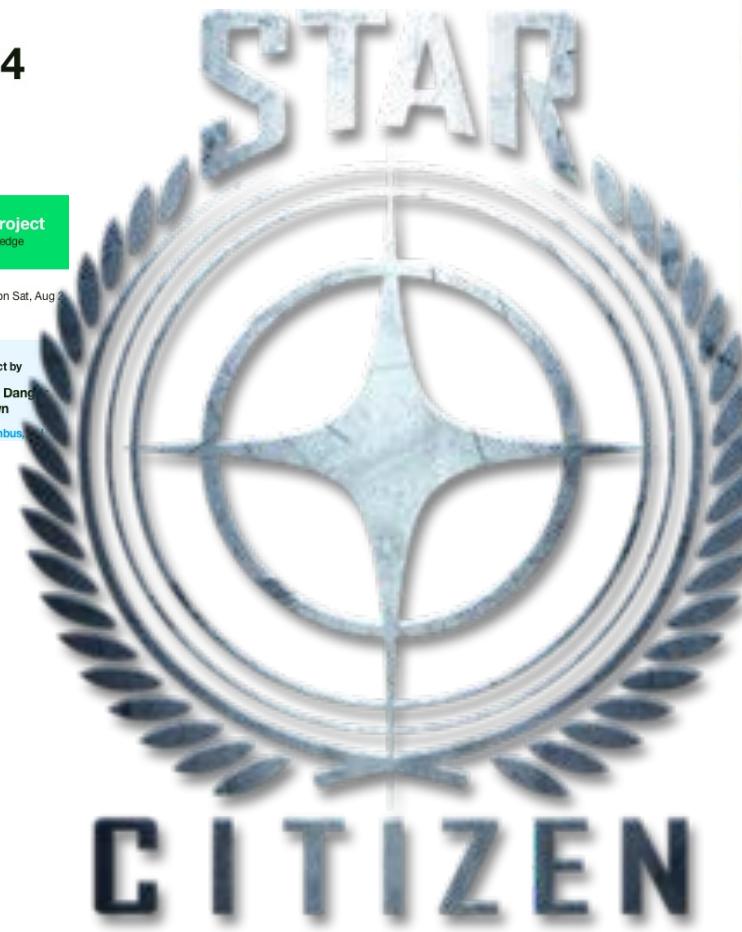


Source: https://en.wikipedia.org/wiki/List_of_highest-funded_crowdfunding_projects

Pros / Cons of Crowdfunding

- Pros
 - Money! – provides access to funding not otherwise available
 - Testing – assess the level of enthusiasm / interest in your offering before launch, gather valuable customer feedback at low cost
 - Community – build relationships with early adopters that become emotionally and financially invested, likely to spread the word
- Cons
 - Not easy! – readiness, planning, communication, networking
 - Double-edged sword! – advocates → saboteurs, failure damning
 - Competition – ideas stolen, brought to market faster than you

Crowdfunding Controversies / Scams / Fails



\$23,800 of \$20k goal
Raised by 244 people in 7 months
Donate Now Share on Facebook

Created September 13, 2014
on behalf of Jenny Flynn Cataldo
Medical
BIRMINGHAM, AL

Recent Donations +
\$200 1 hour ago Share

Jenny Flynn Cataldo Medical Care
Share Tweet 1.1K shares

A screenshot of a crowdfunding page for "Jenny Flynn Cataldo Medical Care". The page shows a photo of a woman smiling with her arm around another person. The funding goal is \$20k, and \$23,800 has been raised by 244 people over 7 months. A "Recent Donations" section shows a recent donation of \$200 made one hour ago.



Equity Financing

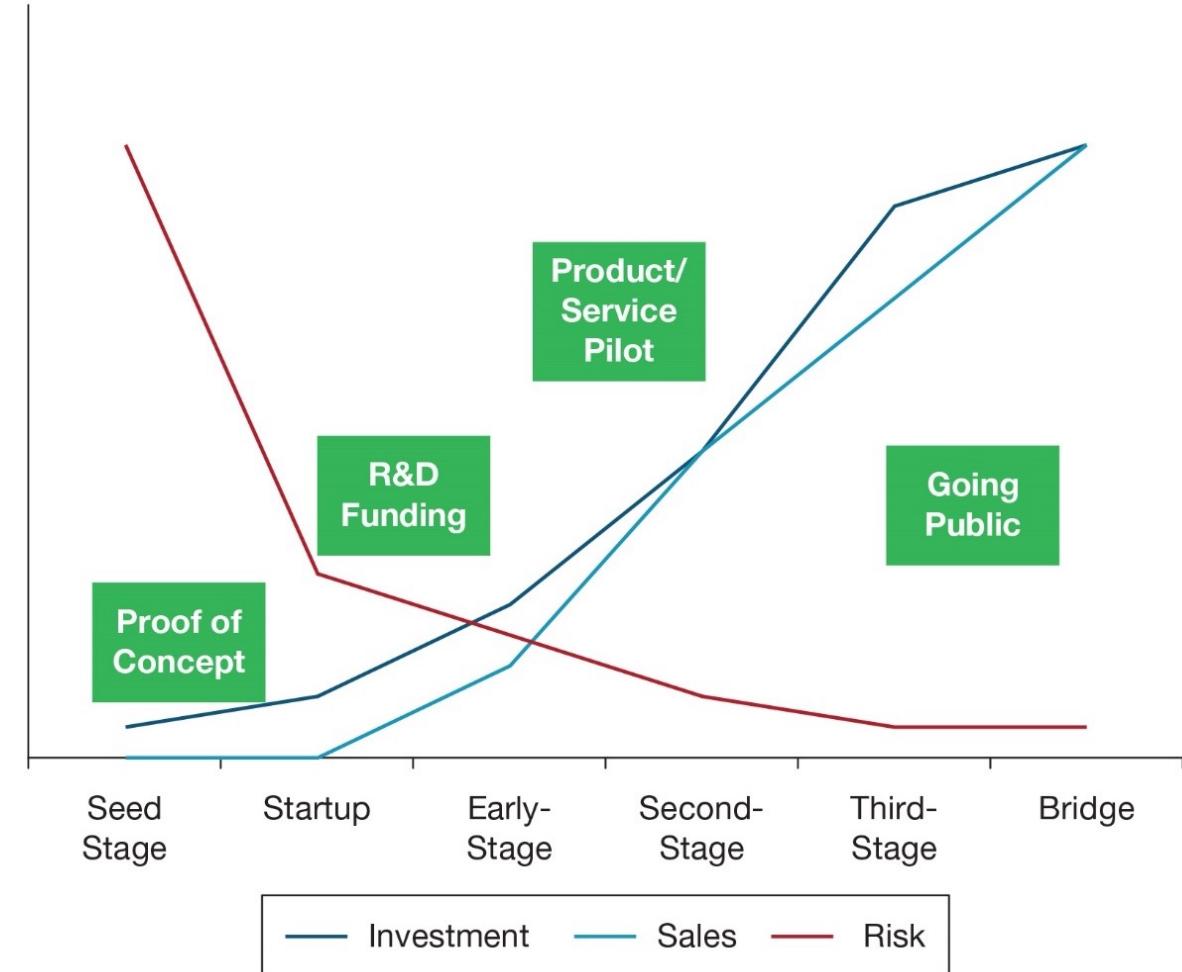
- The sale of shares of stock in exchange for cash
- Most early stage ventures not positioned to attract formal investment
- Some never will be – not all ventures are “investment worthy”
- Heuristic: avoid seeking investment for as long as possible
 - Give time to grow and build value, increase leverage
- How long you can wait depends on the business – need to grow fast (competition), expensive development (technology), etc.

Valuation

- Must know the value of business before seeking equity investment
 - How much additional capital is required?
 - What is the company currently worth?
 - How much would you need to sell to get required funding?
- It is often difficult to put a value on early-stage ventures
 - Little and / or negative financial history
- Investors will base on anticipation of future growth and returns
 - Profit: when, how much, how quickly will it grow, cap, exit?
- Motivations vary – cashflow, returns, capacity, IP, strategy, etc.
 - Methods value accordingly – comps, multiples, NPV

Stages of Equity Financing

- Financing stages follow venture growth and development
- Capital needs increase over time
- Investors support specific goals and time horizons (manage risk)
- Seed – prove concept
- Startup – implement idea, R&D
- Early – product ready, little rev
- Later “raises” to scale the biz



Key Factors for Investors

FACTOR	KEY QUESTIONS
Market conditions	Is the market ready for your product/service? Is the market size big enough? Is the market reachable?
Competition	Who are the competitors in your industry? How does your product compare with similar items in the market? Is there a unique and compelling competitive advantage?
Market opportunity	What is the opportunity for your product? How many customers? What is the proof that there is a market?
Founders	Are they experienced in the industry? Have they done startups before? Can the investor work with them? Are they coachable?
Social proof	Is there evidence that others believe in the founders' vision as much as they do? Does the company have a board of advisors? What are their customers saying about the business?
Value add	How much value can investors bring to your business through their expert advice and guidance?
Potential for return	If an investor puts in \$1 today, what will they get in 5 years? 10 years? Does the potential return match the potential risk?

Angel Investors

- Originally used to describe wealthy investors in theatre
- Now – anyone that uses personal capital to invest in ventures
- Accredited Investors – \$200k+ / yr, \$1M+ net worth (Federal law)
- Why do they invest?
 - Possibility of high returns – 10x in 5 years
 - Enjoy mentoring others, nurturing new ventures
- Often self-made, add value through advice, skills, expertise, network
- Can be hard to find, start with your network: friends and family, attorneys, entrepreneurs, co-workers, university faculty, investors

Angelic Relationships

- Important to match Angel to Venture
- Different types, different motivations, expectations, objectives
- Reasons for rejection include
 - Geographic Region
 - Business Sector
 - Lack of Referral
 - Neck Table 13.2, key factors

Entrepreneurial Angels

- Experienced entrepreneurs
- Willing to take bigger risks
- Provide mentorship

Corporate Angels

- Commonly former business executives
- Looking for ROI or a paid position in the new venture
- May clash with startup culture

Professional Angels

- Professionals from other fields (doctors, lawyers, etc.)
- Commonly silent investors
- May want to become paid advisors

Enthusiast Angels

- Independently wealthy
- Retired entrepreneurs or executives
- Investing is a hobby

Micromanagement Angels

- Experienced entrepreneurs
- Looking for hands-on involvement in new ventures

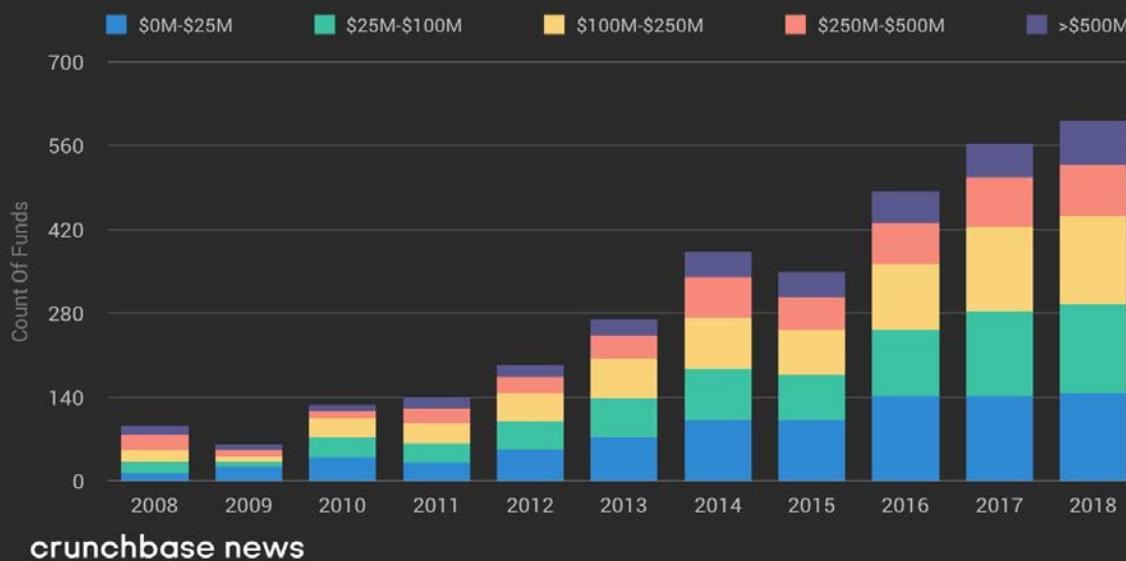
Venture Capital

- Venture Capital Limited Partnership Fund, ~1000 active in the USA
- Formed by professional investors / money managers
- Pool funds to invest – buy equity in different early-stage startups
 - Not usually seed / startup rounds – too early, same overhead
 - Notable exception: Instagram, \$250k → \$78M 
 - Typically looking to invest in scaling proven businesses
- Generally invest minimum \$1M, sometimes \$100M++
- Fund eventually dissolved with assets distributed to partners
- History of VC interesting – see the book, p 316

The Number Of New Venture Funds

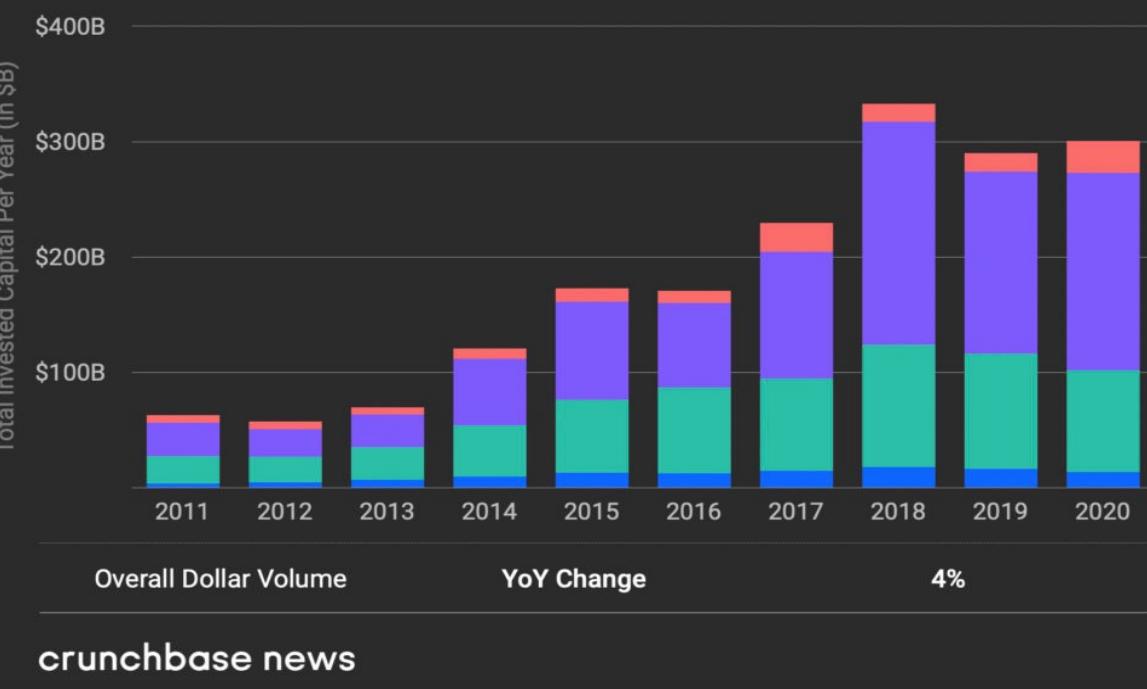
Counts Of U.S. Venture Funds, By Size, Over Time: 2008-2018

Based on Funds data for investors in Crunchbase's accelerator, incubator, micro VC, angel group, and venture capital categories, subdivided by fund size and the year the fund was first announced or filed for. Excludes funds with no attached dollar amount in Crunchbase. Data is current through late February 2019 and is subject to change as new firms and fundraising history get added to Crunchbase over time.



Global Venture Dollar Volume 2011 to 2020

Angel-Seed Early Stage Late Stage Technology Growth



<https://news.crunchbase.com/news/there-are-more-vc-funds-than-ever-but-capital-concentrates-at-the-top/>
<https://news.crunchbase.com/news/global-2020-funding-and-exit/>

VC is Hard to Come By

- VCs review 100+ proposals / month
- Partners in each firm typically do 1-3 deals per year
- Rejection is the Norm:
 - You must stand out
 - You cannot take it personally
- Less than 1% of businesses ever raise venture capital
 - Very geographically focused – CA, NY, MA
 - Less than 1% touches rural areas
 - Less than 1% to minority, less than 2% to female entrepreneurs

Bank / SBA Loans

- Debt financing – borrow money, paid back with interest
- Only 18% of businesses ever access a bank loan
- Loan approvals based on Capital, Collateral, Capacity, Credit
 - All in short supply for start-ups
- Most banks too large to consider loans less than \$100k
- Many modern businesses do not rely on physical assets (collateral)

***“There is no easy way for you to acquire the money you need...
build something that inspires people to invest in you in the long term”***

Due Diligence

- Rigorous process carried out to evaluate an investment opportunity
- Last step before finalizing deal, going to contract, getting money
- Amount of diligence increases with business stage, funding required
- In-depth appraisal, lasts weeks-months
 - Founders and key employees, including BG / reference checks
 - Company policies and legal practices, including IP
 - Market / Product / Financials aka Desirability, Feasibility, Viability
- Should be mutual – learn about the VC, talk to others in the portfolio and some that did not join

Exit

- Equity investment not based on interest-based returns, though some deals include dividends
- Big payday → Exit event
 - Initial Public Offering – first opportunity to sell stock to the public
 - Acquisition – purchased by a larger company for capacity, cash flow, competition, technology, etc.
 - Buyback – company buys its stock back from the VC firm at a premium; rare

The End

*AND THEY
Lived Happily
EVER AFTER*

