Business-Engineering-Technology (BET)
BUSI / ENGR 3520

Integrating Business and Engineering Theories with Practice

Fall 2020 Course Summary & Final Review

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INDUSTRIAL & SYSTEMS ENGINEERING

THOMAS WALTER CENTER for TECHNOLOGY MANAGEMENT at AUBURN UNIVERSITY

Introduction

This deck summarizes the traditional lectures given in BUSI / ENGR 3520 during the Fall 2020 semester as part of the Business-Engineering-Technology (BET) minor at Auburn University. The course teaches concepts related to innovation, entrepreneurship, product development, and leadership, including:

- Entrepreneurial Mindset
- Technology Trends and Opportunity Identification
- Creativity and Design Thinking
- Evidence-Based Entrepreneurship and the Lean Startup Method
- Business Model Generation and Customer Development
- Concept Generation, Specifications, and Benchmarking

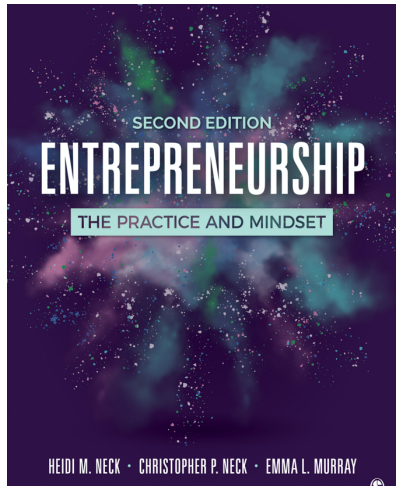
Over 400 slides of material have been condensed into less than 80, summarizing approximately 30% of the semester's total course content.

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.

Class Textbooks

Referenced in these slides as Neck and Ulrich

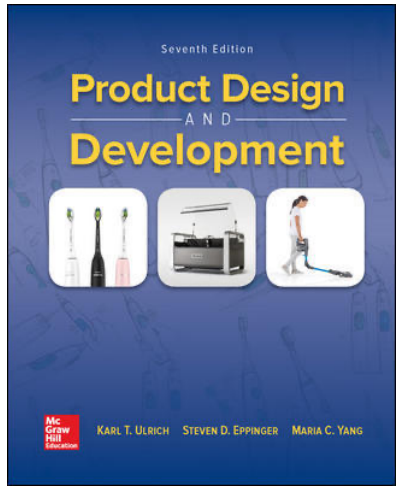


Entrepreneurship: The Practice and Mindset

Neck, Neck, and Murray

2nd Edition, SAGE Publications, 2020

Confusing array of digital / print options



Product Design and Development

Ulrich, Eppinger, and Yang

7th Edition, McGraw Hill, 2020

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

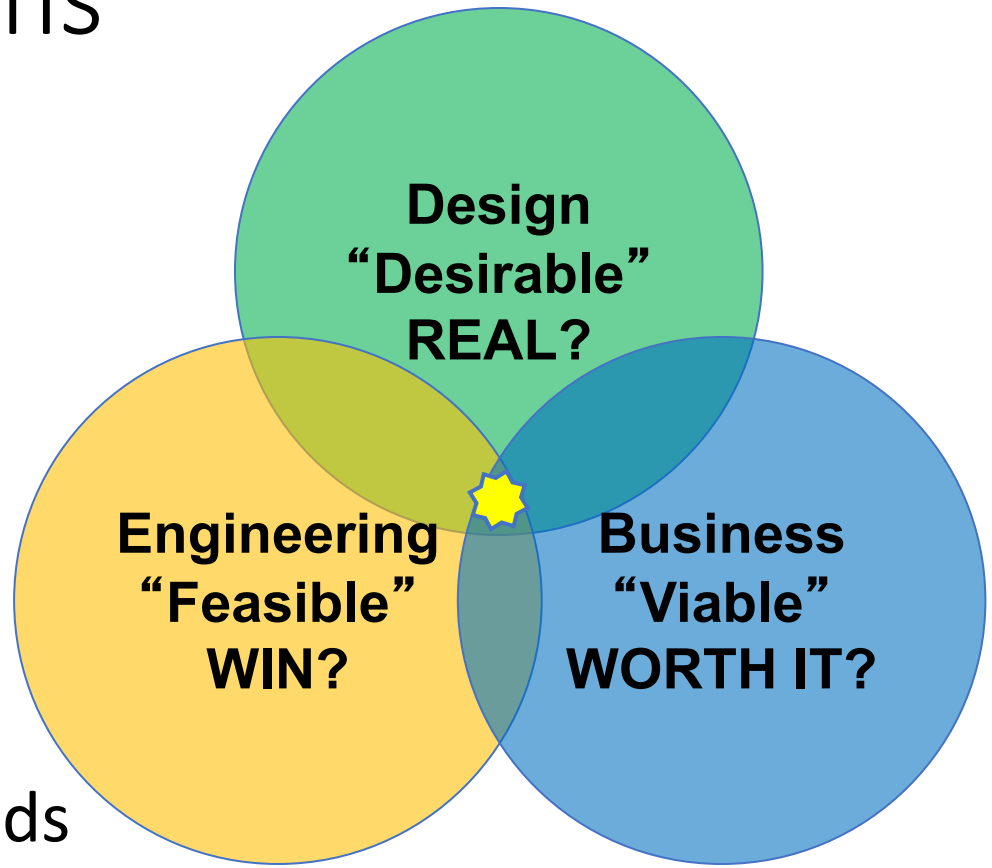
TLDR: The Essence of BET 3520/60

Making Valuable Things Happen

Three Simultaneous Problems

- Business orientation – Viability
  - Strategy, financial analysis, marketing
- Engineering orientation – Feasibility
  - Technical and functional design
- Design orientation – Desirability
  - Aesthetics and user experience

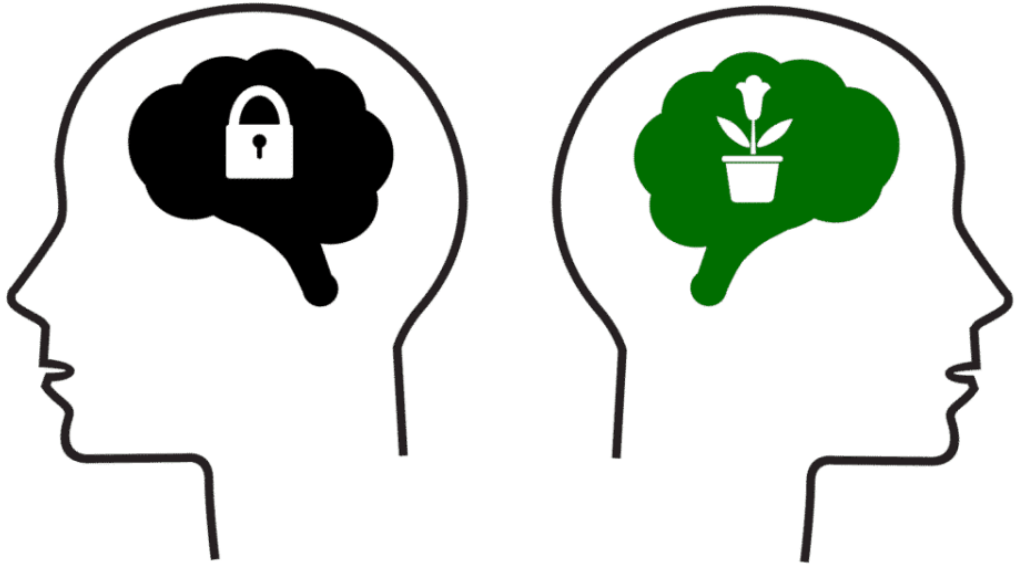
Customer orientation – address unmet needs



The single necessary and sufficient condition for a business is a **paying customer**.

Entrepreneurial Mindset

Neck Chapters 1,2



Traditional Management & Leadership Skills

- Management → "Doing Things Right"
  - Relates to conditions of stability
  - Well-informed decision-making processes
  - Relies on data from past experience
- Leadership → "Doing the Right Things"
  - Applies to times of change
  - Establishing and executing on a vision
  - Methods for creative problem solving and collaboration

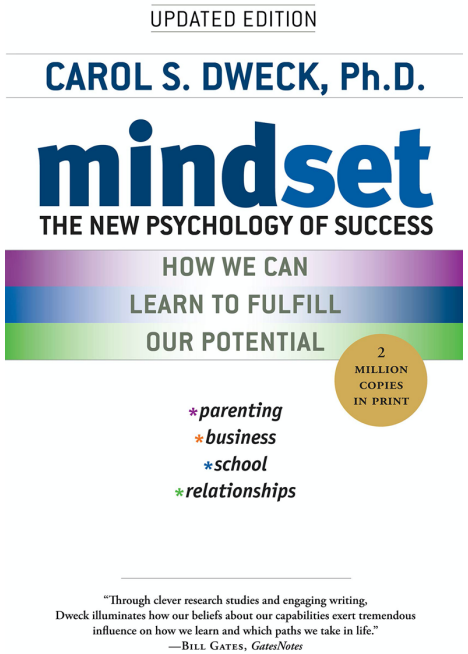
21st Century Change – Management and Leadership are inseparable
Successful managers must be good leaders, and vice-versa

What is Entrepreneurship?

- “A way of thinking, acting, and being that combines the ability to find or create new opportunities with the courage to act on them.”
- “…vital life skill that prepares individuals to deal with an ambiguous and uncertain future.”
- “…vehicle for developing a set of skills – financial, social, communication, marketing, problem solving, and creative thinking, to name a few – that are applicable across many fields.”

Mindset

- Established set of attitudes held by someone
- Lens through which we view, interpret, and react to the world
- Subconsciously guides our reactions and decisions
- Two general orientations:
  - Fixed – perceive their talents and abilities as set traits
  - Growth – believe their abilities can be developed
- Change is possible, takes practice



The Entrepreneurial Mindset

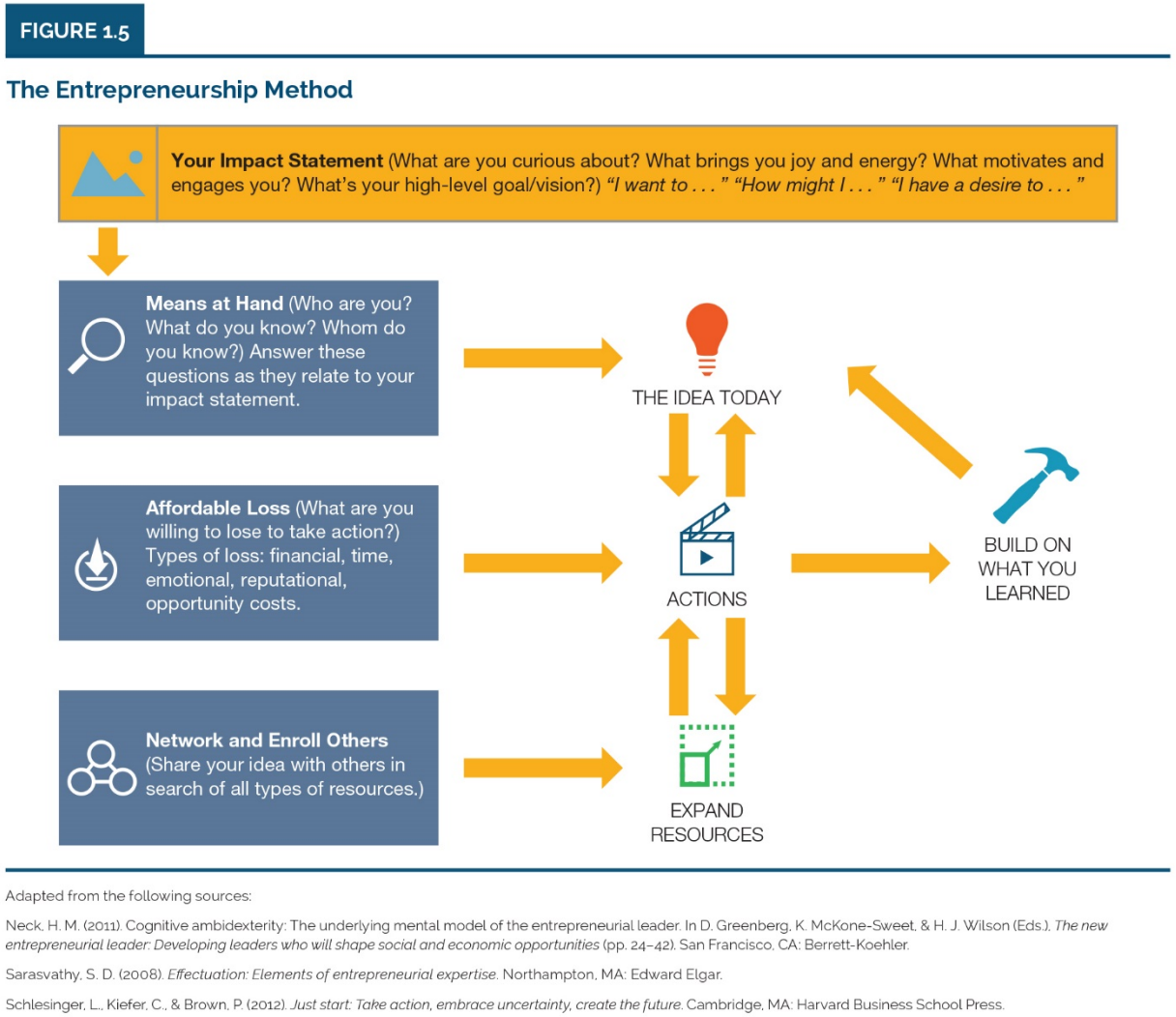
- Characterized by
  - Habitually searching for opportunities in their daily activities
  - Tendency to be confident and take action in uncertain conditions
  - Willingness to accept and learn from failure
  - Concentration, adaptability, and self-regulation – self-leadership
- Interrelated with the Entrepreneurial Method
  - Mindset ⇔ Method

Beware of Passion

- Passion = intense emotional output; symptom
- Valuable driver associated with courage, motivation, resilience, etc.
- Fickle – change more easily than underlying motivations
- Blinding – ignore warning signs, discount negative feedback
- “Find your passion” may not be the best advice
  - Less likely to try new things
  - Tend to give up more easily in the face of obstacles
- Go deeper – “develop your passion”

The Entrepreneurship Method

1. Define Impact
2. Identify Resources
3. Develop Idea
4. Control Risk
5. Start Small
6. Expand Resources
7. Learn and Improve
8. Assess Honestly

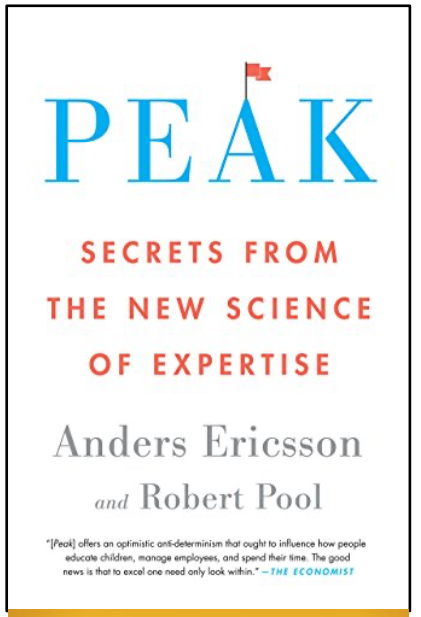


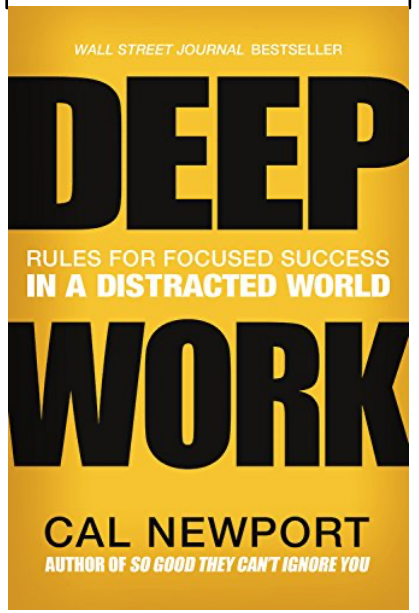
Practice Makes Perfect?

- Entrepreneurial Method requires practice to master
- How to maximize returns on practice?
- Rote practice (repetition) yields diminishing returns
- Performance does not improve with experience
- Example: driving a car every day does not make you Mario Andretti

Deliberate Practice

- "Perfect practice makes perfect"
- Rigorous, carefully focused efforts improve performance
  - Focus, attention, and concentration
  - Consistent over a long time period
  - Goals and continuous feedback
- Cognitive benefits – performance, memory, intuition
- Learning how to learn
- Use frameworks not ad-hoc methods



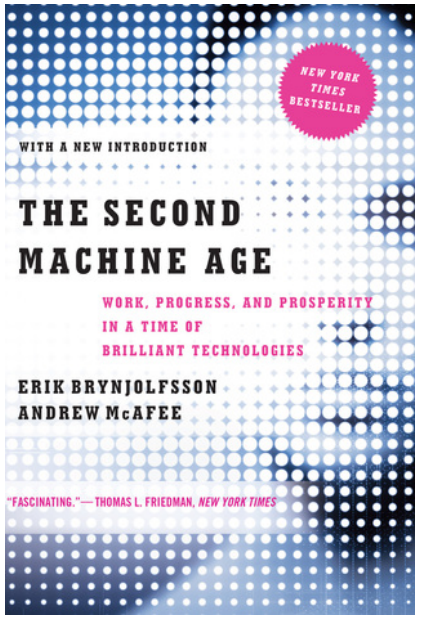


Trends and Challenges

Not in Texts

2nd Machine Age

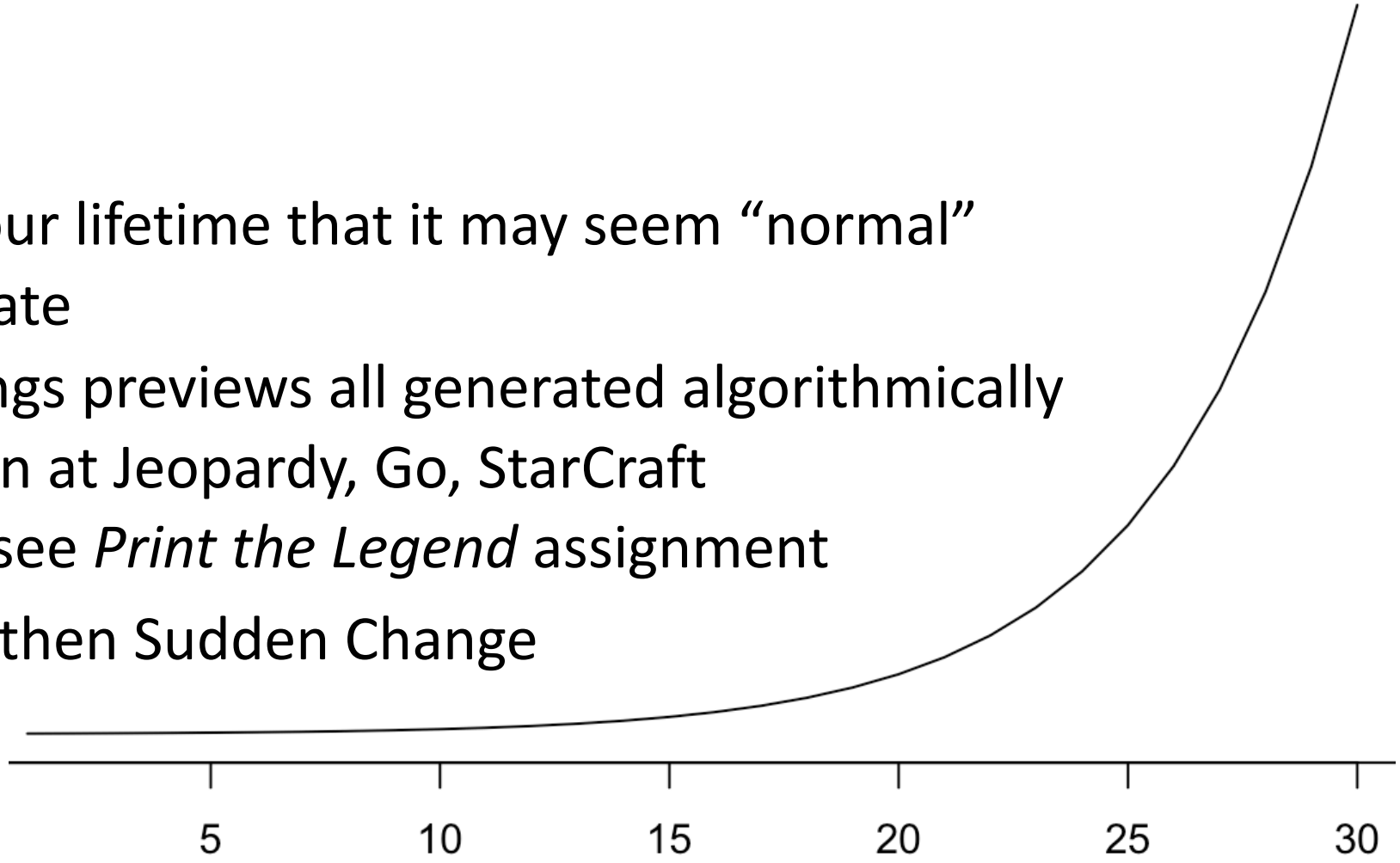
- Technology: “the application of scientific knowledge for practical purposes, especially in industry” (Wikipedia)
  - First Machine Age – muscle power to steam power
  - Second Machine Age – mental → computer power
- Mental power at least as important to progress
- Huge, ongoing impact on humanity
- Digital technology still rapidly improving



Brynjolfsson, Erik, and Andrew McAfee. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W. W. Norton & Company, 2014.

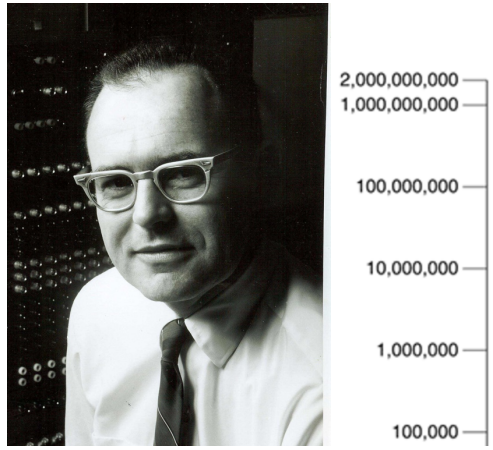
Rapid Change

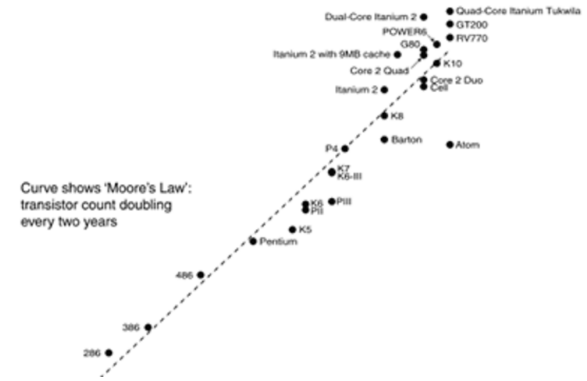
- Many examples
- So common in your lifetime that it may seem “normal”
  - Google Translate
  - Forbes’ earnings previews all generated algorithmically
  - Computers win at Jeopardy, Go, StarCraft
  - 3D Printing – see *Print the Legend* assignment
- Pattern: Gradual then Sudden Change
- Exponential



Brynjolfsson, Erik, and Andrew McAfee. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W. W. Norton & Company, 2014.

Moore's Law

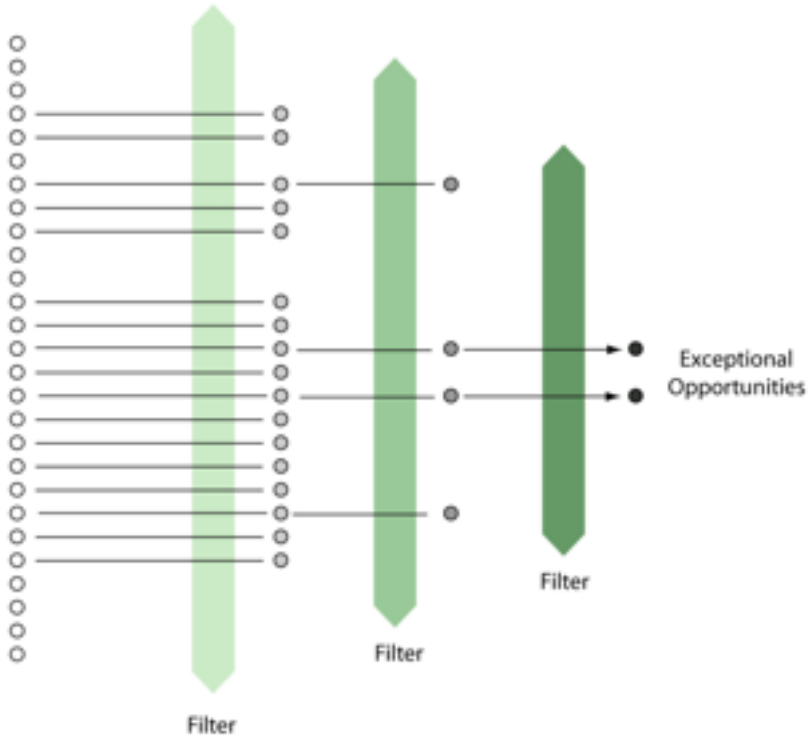




- Gordon Moore, founder of Intel
- "Complexity for minimum component costs has increased at a rate of roughly a factor of two per year", 1965
- Common interpretation: speed and capability of computers double about every two years while the prices decrease
- Predicted it would hold for 10 years
- No end in sight – scientists and engineers keep innovating
- Remarkable – not seen in any other domain
  - Sustained (long term) with high growth rate (low period)

Brynjolfsson, Erik, and Andrew McAfee. *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W. W. Norton & Company, 2014.

Ideas and Opportunities



Neck Chapter 3

Ulrich Chapter 3

What is an Opportunity?

- "A hypothesis about how value might be created." - Ulrich
- "A way of generating value through unique, novel, or desirable products, services, and even processes that have not been previously exploited in a particular context." – Neck
- Not the solution!
  - Keep the "problem space" wide
  - Don't limit options by imagining solutions early on

Market with a need to be filled,
problem to be solved, job to be done.

Factors Driving Economic Value

- Idea – quality of the core idea itself
  - “You can’t make a silk purse out of a sow’s ear.” – Jonathan Swift
- Team – the people and their development effort
  - Midas hypothesis, the golden touch
- Market – your potential customers
  - Scale of the gap that you’ve identified
- “Exogenous” (external) – everything else (other)

Ideas matter, but aren’t everything.
To find the best ones, start with many.

From Idea to Opportunity

FIGURE 3.5

Idea Generation, Creativity, and Opportunity Recognition

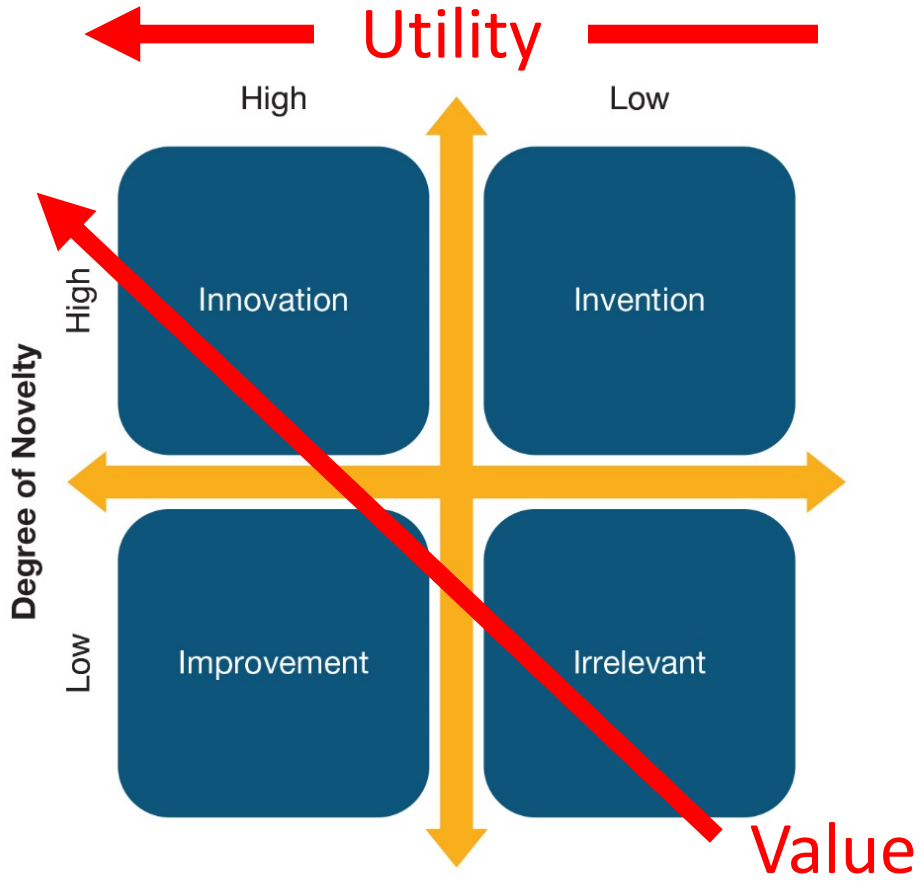
Source: Baron, R. A., & Shane, S. A. (2008). *Entrepreneurship: A process perspective* (p. 69). Mason, OH: Thomson/South-Western Educational, a part of Cengage Learning, Inc. Reproduced by permission. www.cengage.com/permissions

Idea Classification Matrix

Utility & Novelty

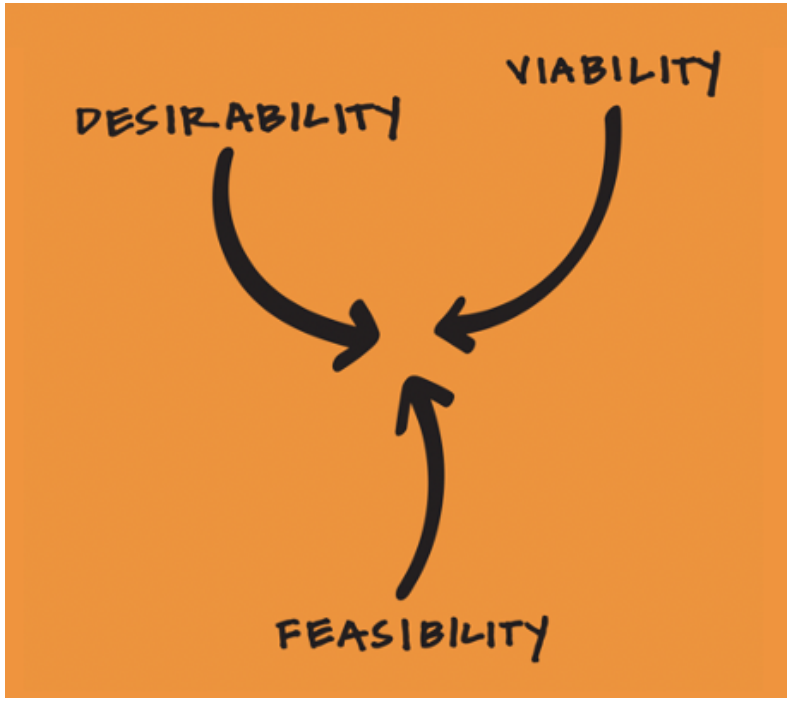
FIGURE 3.1

Idea Classification Matrix



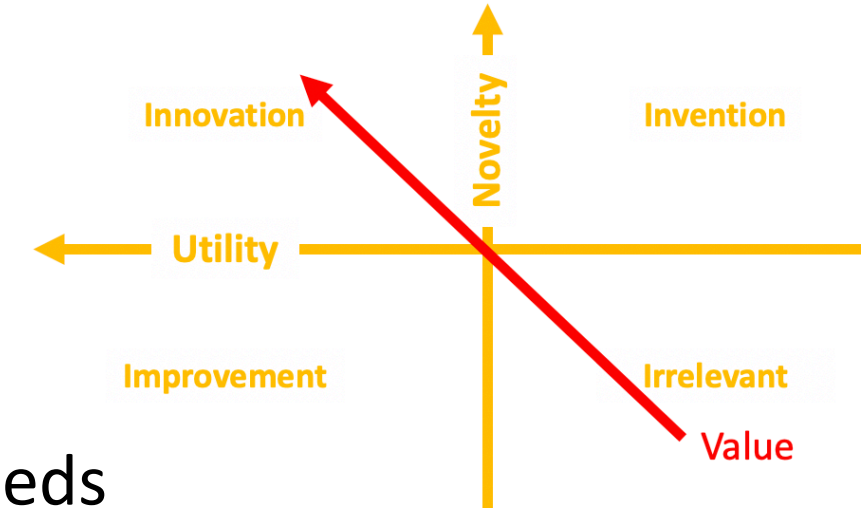
Source: Neck, H. M. (2010). Idea generation. In B. Bygrave & A. Zacharakis (Eds.), *Portable MBA in entrepreneurship* (pp. 27–52). Hoboken, NJ: John Wiley & Sons.

Creativity & Design Thinking



Neck Chapter 4

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

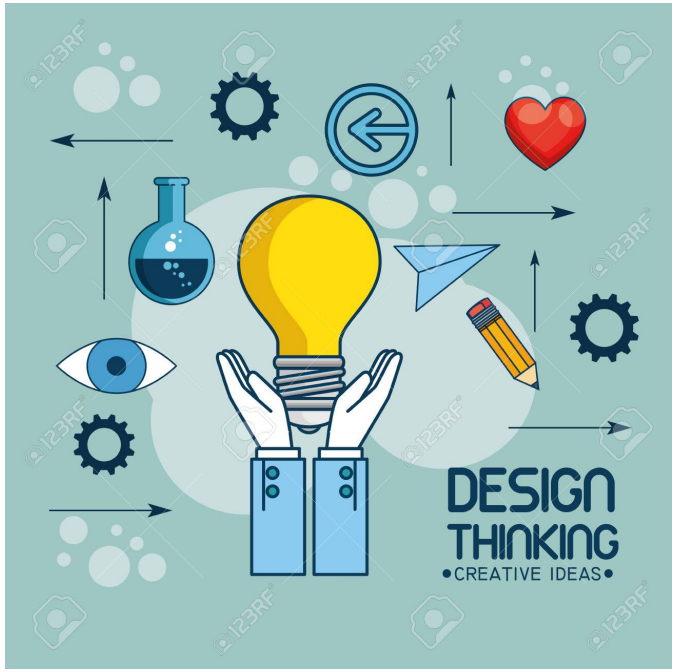
"Making Valuable Things Happen" = Innovation

Creates new value, builds competitive advantage

Inherently Creative Problem-Solving Process

Design Thinking

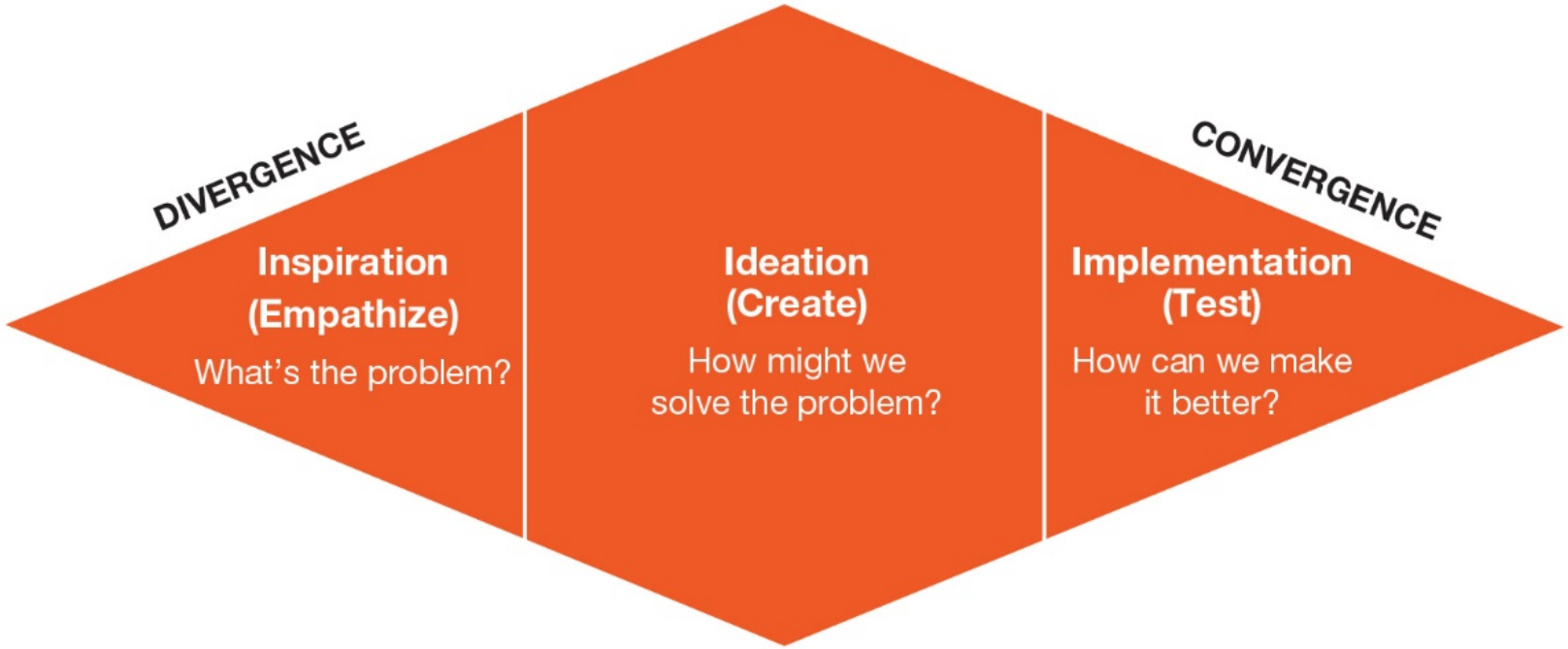
- Toolkit for an entrepreneur to solve complex problems for people
- A human-centered approach to innovation that brings together what people need with what is technologically feasible and economically viable.
- Identify new solutions that meet market needs
- Framework and strategy for innovation
- Pioneered, popularized by IDEO



Design Thinking Process

FIGURE 4.2

IDEO's Three Phases of Design Thinking



Design Thinking Process

- System of overlapping phases, not linear
- Divergent Thinking – imaginative, playful, relatively unconstrained
  - Generate many ideas
  - Develop broad understanding of problem
- Convergent Thinking – selective, thoughtful, abstract to concrete
  - Narrow down ideas
  - Identify those with the most potential
- Goal: Product-Market Fit
  - Match user needs with solution delivered by the product (value)

Evidence-Based E-ship

Neck Chapter 5

Business Model

- How a new venture creates, delivers, and captures value, including activities and resources that interact to deliver value to customers
- Defined by its strategy and four key components
- Business Model Strategies
  - Innovation – create entirely new market, Facebook → Social Media
  - Disruption – new way of doing things, MOOCs → Education
  - Differentiation – stand out products, Yeti → Coolers
  - Imitation – no advantages, seek differentiation!
- Correspond to the idea classification system, L4 N3

Four Parts of a Business Model

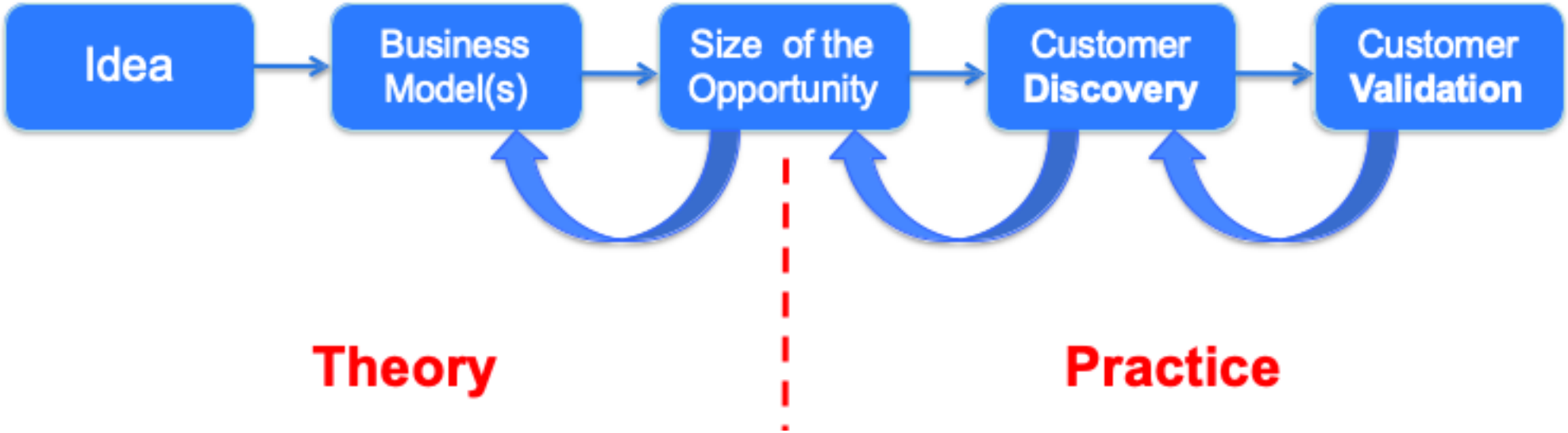
- Offering – what you are "selling," the value generated for your customers, and how you will reach and communicate with them
  - Includes Customer Value Proposition (CVP)
- Customers – the people who populate the segments of the market that your offering will serve and are willing to pay for your offering
  - Must be selective – market segmentation
- Infrastructure – all the resources (people, technology, products, suppliers, partners, facilities) required to deliver the value proposition
- Financials – the revenue and cost structures needed to cover operating expenses and other financial obligations

Customer Value Proposition (CVP)

- Sum total of benefits which customer is paying for
- Part of the Offer, perhaps the most important part of your BizMod
- To be effective your CVP must:
  - Offer better value than the competition
  - Be measurable (to quantify competitive advantage)
  - Be sustainable
- Design Thinking!
- Successful CVPs based on deep understanding of user and their needs
- Not about persuading customers to buy your solution
- Emphasizes how much they are willing to pay for the value

What is a Startup?

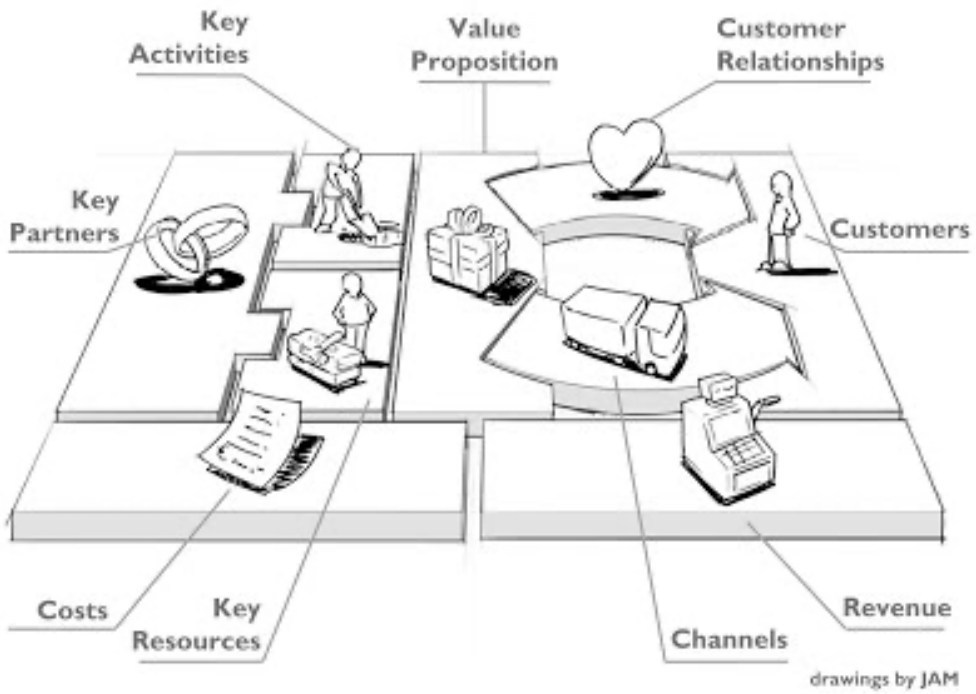
A temporary organization that is designed to search for a repeatable and scalable business model



Evidence-Based Entrepreneurship (EBE)

- EBE is the practice of hypothesizing, testing, and validating
- Startups have “runways” – time until they run out of resources ($)
- Must validate assumptions quickly and efficiently, learn fast
- Corporate planning methods (5-year plans) not relevant
- EBE provides the right framework, favoring:
  - Experimentation over elaborate planning
  - Customer feedback over intuition
  - Iterative design over traditional up-front development
- Starts with identifying the assumptions in hypothesized opportunity
- During the search both the problem and solution will change

Business Model Generation



Neck Chapter 5

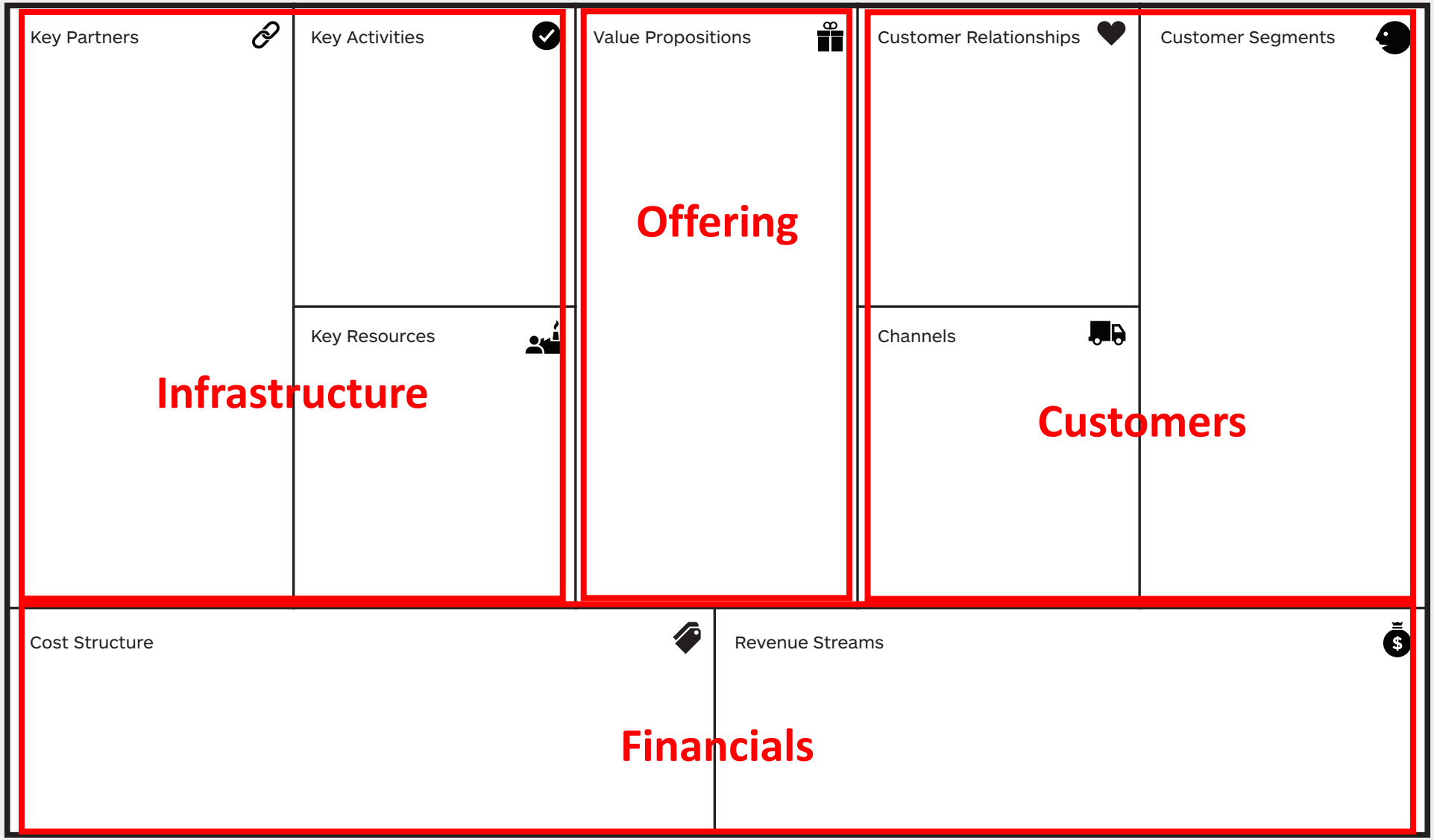
Business Model Canvas

- Created 2008 by Swiss business theorist Alexander Osterwalder
- Very popular way to communicate, think through business models
- Launched his company Strategyzer, consulting, webinars, etc.
- Kicked off a series of books, lots of competitors

Osterwalder, Alexander, and Yves Pigneur. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons, 2013.

The Business Model Canvas

Designed for:	Designed by:	Date:	Version:



DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

https://www.strategyzer.com/canvas/business-model-canvas

Strategyzer
strategyzer.com

Business Model = How to Deliver and Capture Value

Left – Delivering Value

Partners

Activities

Resources

Costs

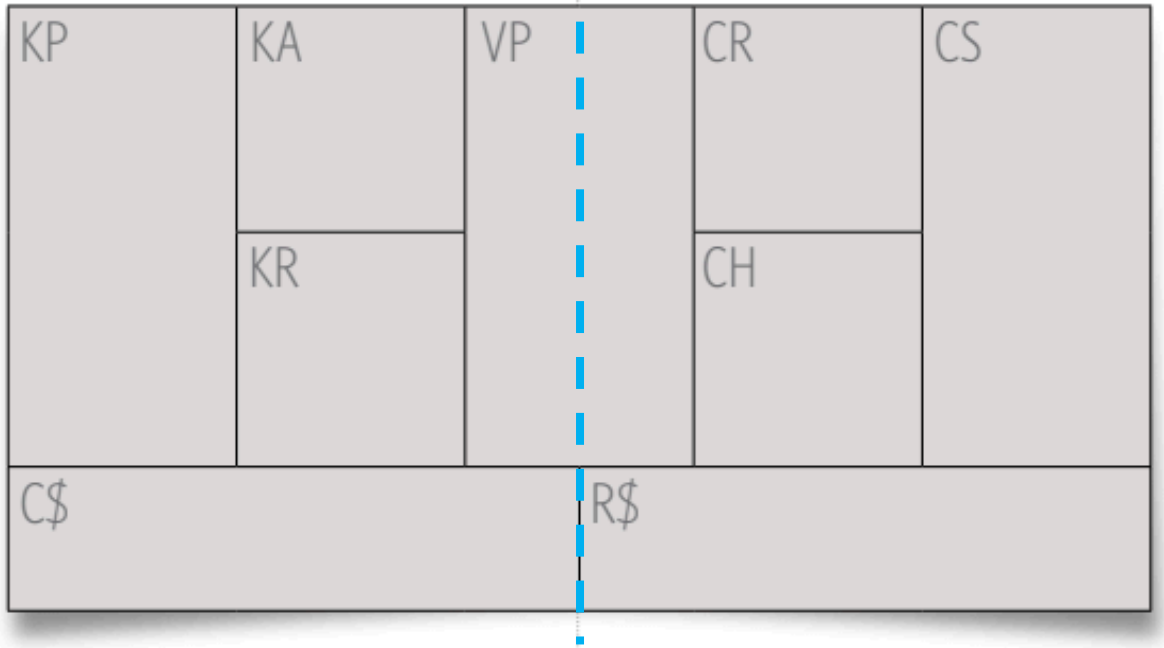
Right – Creating Value

Customer Relationships

Customer Segments

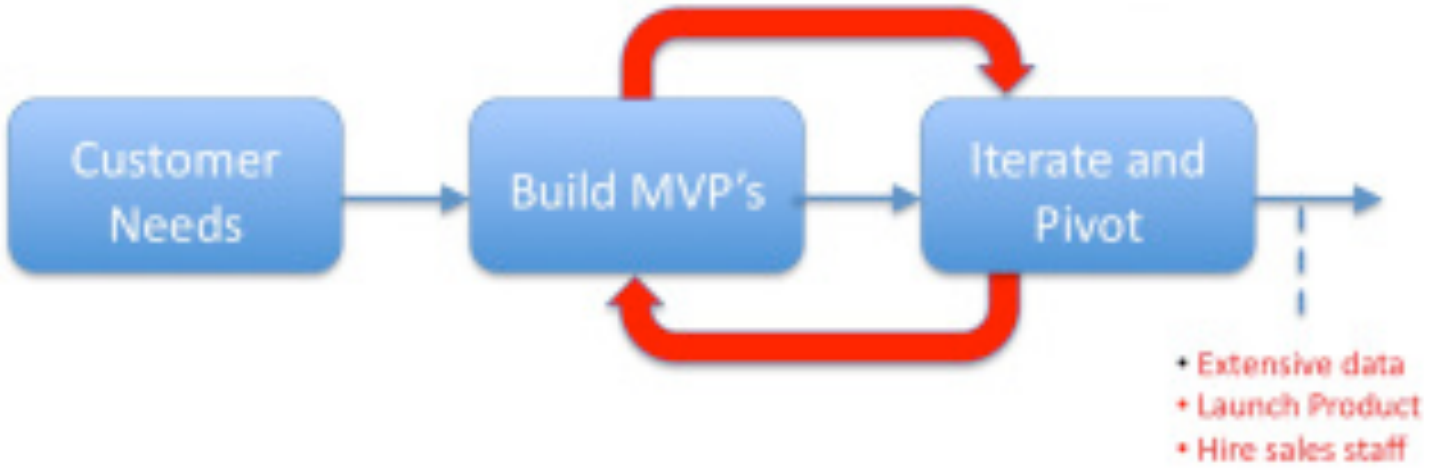
Channels

Revenue Streams



Lean Startup Method

Neck Chapter 7

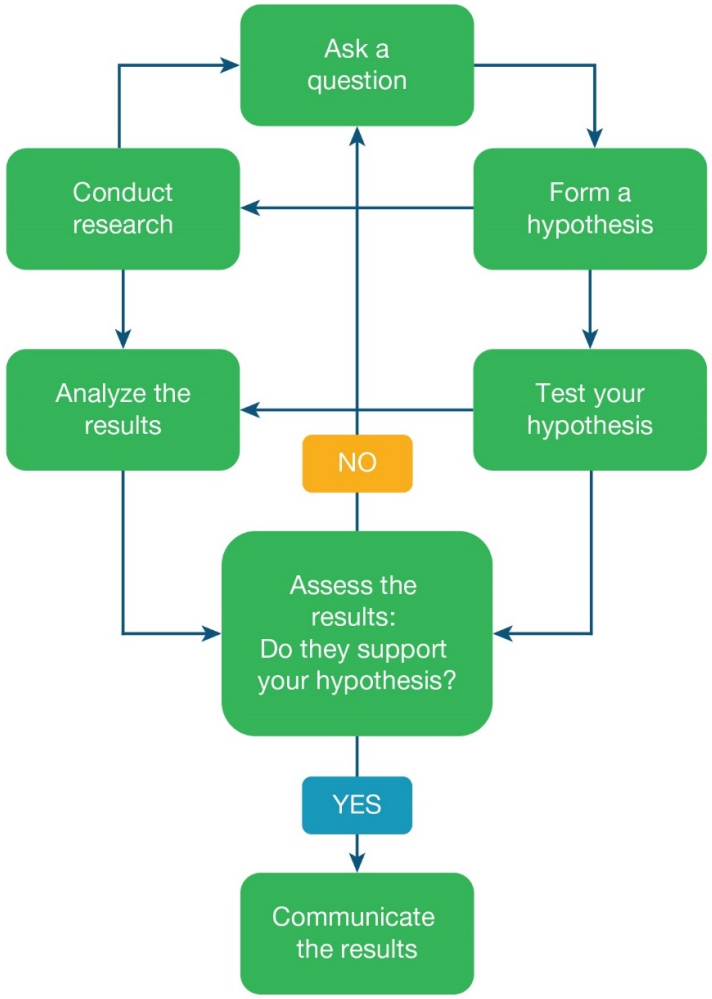


Experimentation

- Experiment = test designed to help you answer “big three” questions
  - Primarily Feasibility and Viability
  - Desirability is the focus of Design Thinking, some overlap
- Neck tries to distinguish experiments and prototypes, confusing
- Prototype = experimental model of your product
  - Communicate look / feel / function for user feedback
- Range in “fidelity” from rapid, low-cost models to early releases
- Choose right method for stage of development, information needed

Scientific Method Applied

1. Ask lots of questions
2. Carry out background research
3. Develop a hypothesis
4. Test hypothesis by running experiments
5. Analyze the data
6. Assess the results



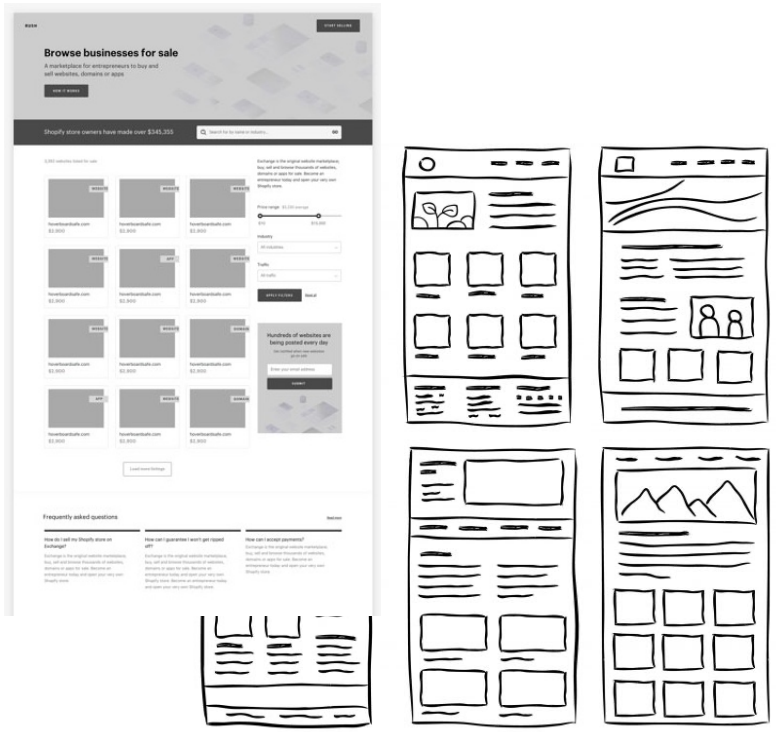
***Think* like scientist, don't *Act* like one!**

Goal: Use low-cost, quick methods to shape ideas, improve them through rapid iteration.

Not to build the perfect experiment.

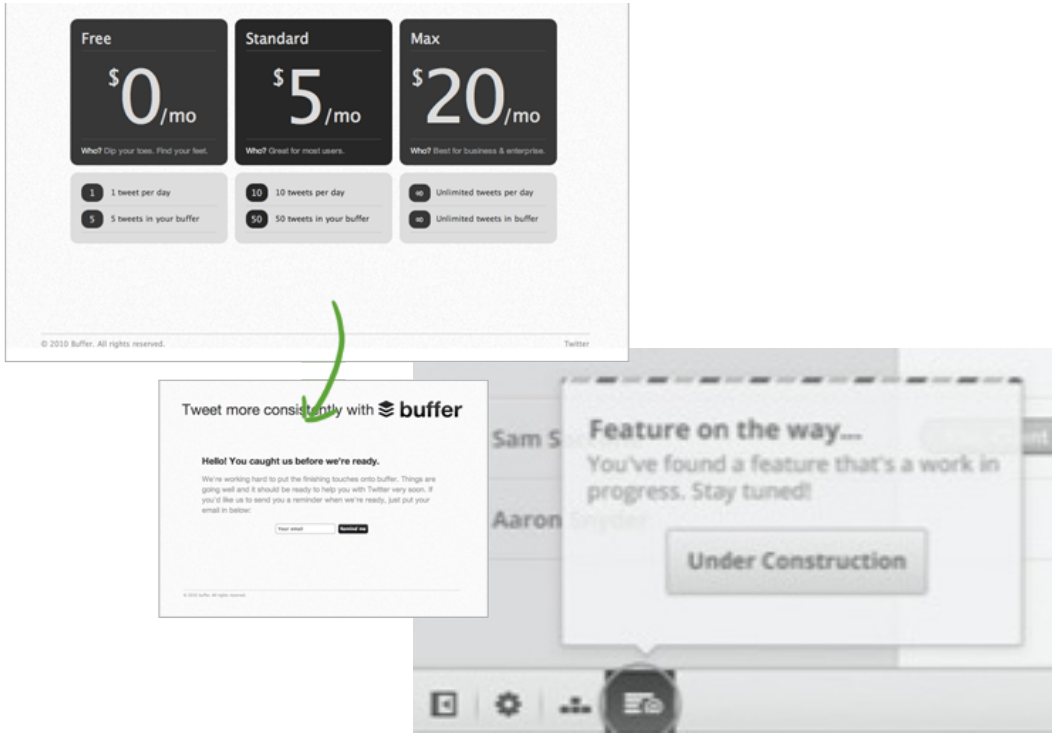
Experiment using Prototypes

Wireframe



Hand Drawn or Software Tools

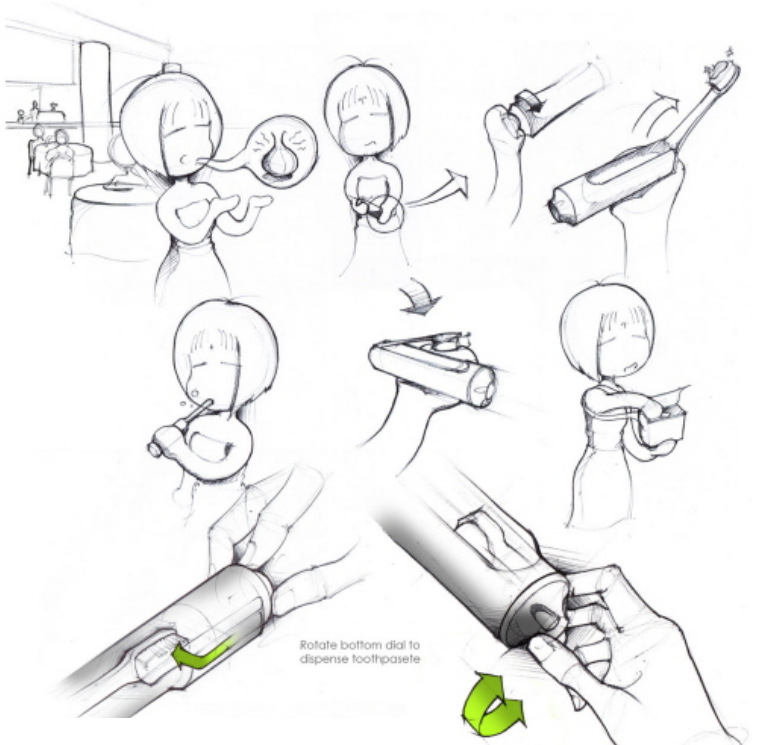
Button to Nowhere / Landing Page



Email sign-up or Click capture

Experiment using Prototypes

Storyboard



Sketched Customer Journey

Role-Playing

Fireball, fireball! Lightning bolt!

Experiment using Prototypes

Preselling

Pebble Time - Awesome Smartwatch, No Compromises

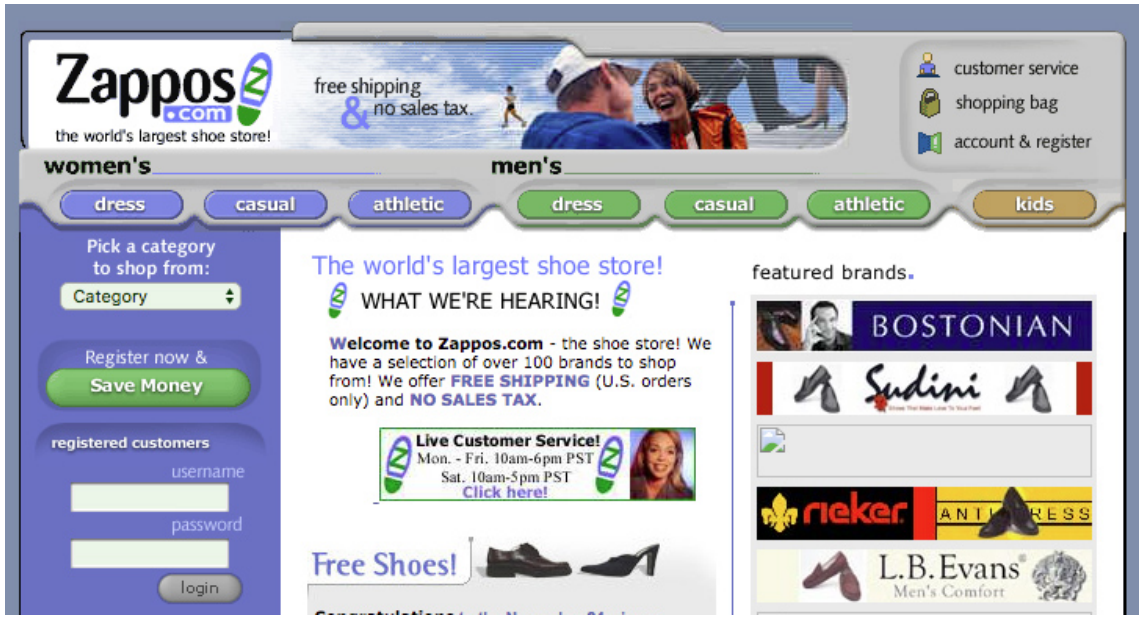
Project We Love Palo Alto, CA Product Design

$20,338,986
pledged of $500,000 goal

78,471
backers

Biggest Kickstarter Campaign Ever

Concierge



Manual Order Fulfillment

Lean Startup Method

- Most well-known flavor of EBE
- Three Step Loop – Build, Measure, Learn
  - Heavy Emphasis on Measuring Results – organize, analyze, track
    - Split tests, search engine marketing, funnel analysis
  - High Cyclic Rate = key competitive advantage
- Pivot or Persevere – change need / solution to find product-market fit
- “Demo-Sell-Build” is a better approach than “Build-Demo-Sell”
- Borrows some elements from Lean Manufacturing
- EBE and LSM bring some “discipline” to Innovation

“Achieving Failure”

- Happens all. The. TIME.
- Businesses assume they…
  - Know what customers want
  - Know how much customers are willing to pay
  - Can predict the future
  - Will gain mainstream adoption immediately
  - Etc.
- Successfully build a product that customers reject
- Personal experience: do not recommend.

Customer Development

Neck Chp 6 (4.6, 7.6)

What is Customer Development?

- WHAT: Identifying, learning from, and understanding your customers
- WHY: Validate assumptions about your imagined problem / solution
- HOW: Qualitative (aka market or ethnographic) research
- Some Key Questions:
  - Who are your customers?
  - How will you reach them?
  - How can you learn best from them?
  - How do you interpret the results?
- Design Thinking → empathy

What is a Market?

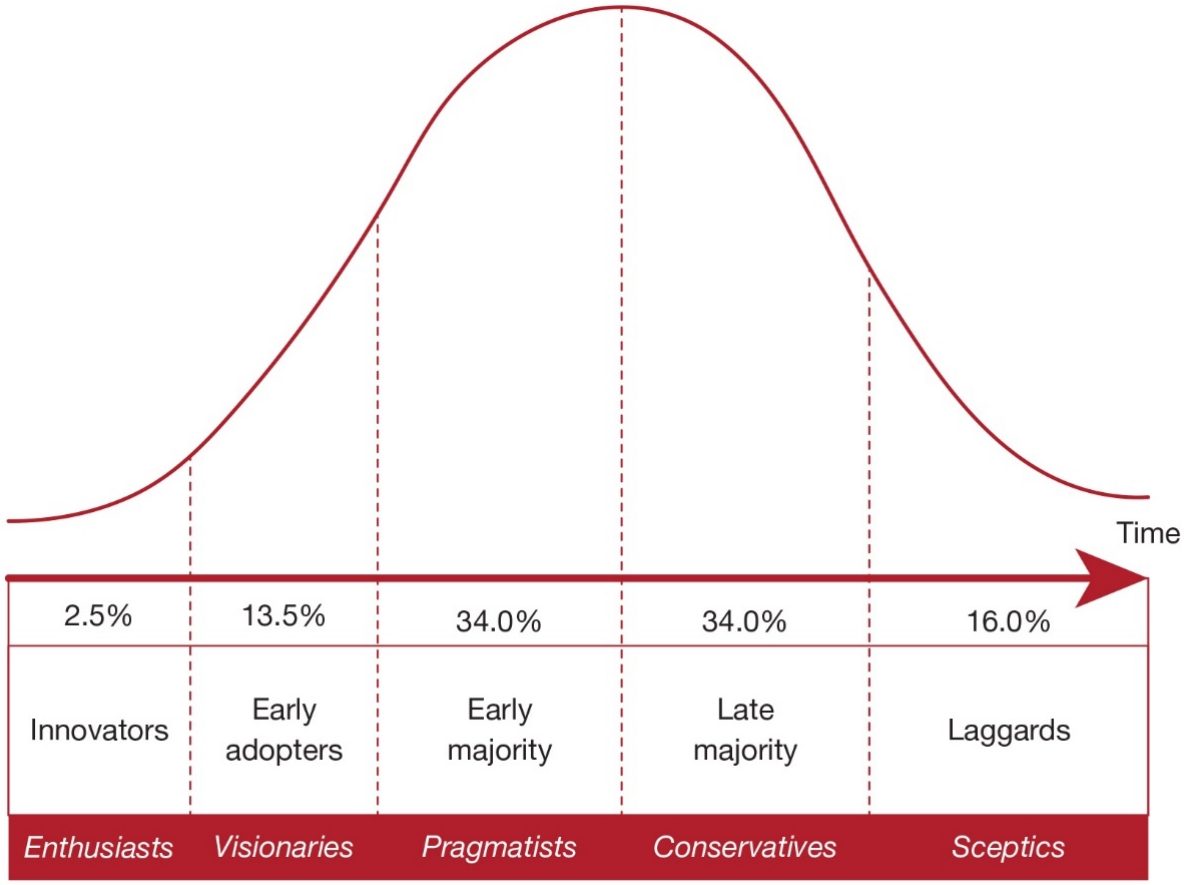
- Market:
  - A set of actual or potential customers
  - For a given set of products or services
  - Who have a common set of needs and wants
  - Who reference each other when making buying decisions
- A place where supply meets demand
  - Physical / virtual location – farmer's market or online retailer
  - Grouping of customers – e.g. "the market for women's jeans"
- Market Opportunity: degree of demand in a market for a product

Customer Segmentation

- Different groups / organizations an enterprise aims to reach and serve
- Grouped by common behaviors or attributes → tailor BMC
  - Differing needs, channels, relationships, profitability
- Customer segments can be defined in four ways:
  - Who are they? Demographics like age, gender, education, etc.
  - Where? Where they live and hang out, interact (“watering holes”)
  - How do they behave? Behavioral and lifestyle habits
  - What are their needs? Fundamental to the offering
- Answers → develop end-user profile

Rogers' Technology Adoption Life Cycle

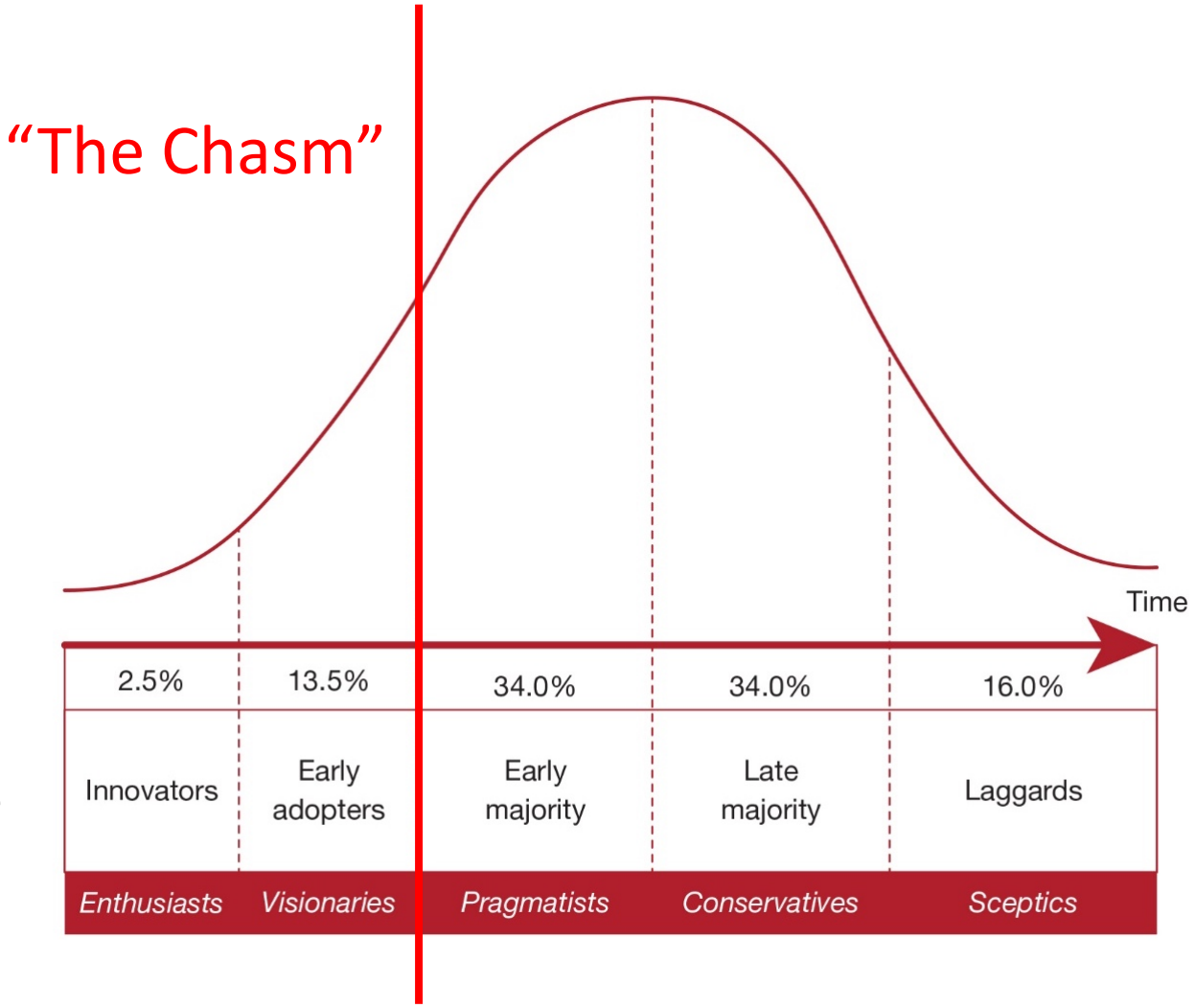
- Innovators
  - Enthusiastic, ok with risk
- Early Adopters
  - Gov / Biz buyers
  - Looking for competitive adv
- Early Majority
  - Practical, risk averse
  - Mass market opinions
  - 34% - key to success



Rogers' Technology Adoption Life Cycle

- Late Majority
  - Skeptical, pessimistic
  - Simple low-cost products
- Laggards
  - Negative, dislike change
  - Least likely adopters

Model can help understand adoption and explain why some products never take off.



Beachhead Market

- Concentration of Firepower
- Customers in a beachhead market…
  - Buy similar products
  - Have similar value expectations
  - Use word of mouth to communicate with others in similar regions or professional organizations
- Small, humble beginnings
  - Generates sufficient cash flow to win over other markets
  - Builds traction, reputation, track record

Qualitative Research

Tell me if you've experienced something like this before:

User: You installed my computer.

Why didn't you install the network router, too?

Contractor: You said you wanted the computer installed.

User: But the computer won't be of much use without a router.

Contractor: You said you wanted the *computer* installed.

I did just what you requested.

Getting the problem right is the most important part of the process.

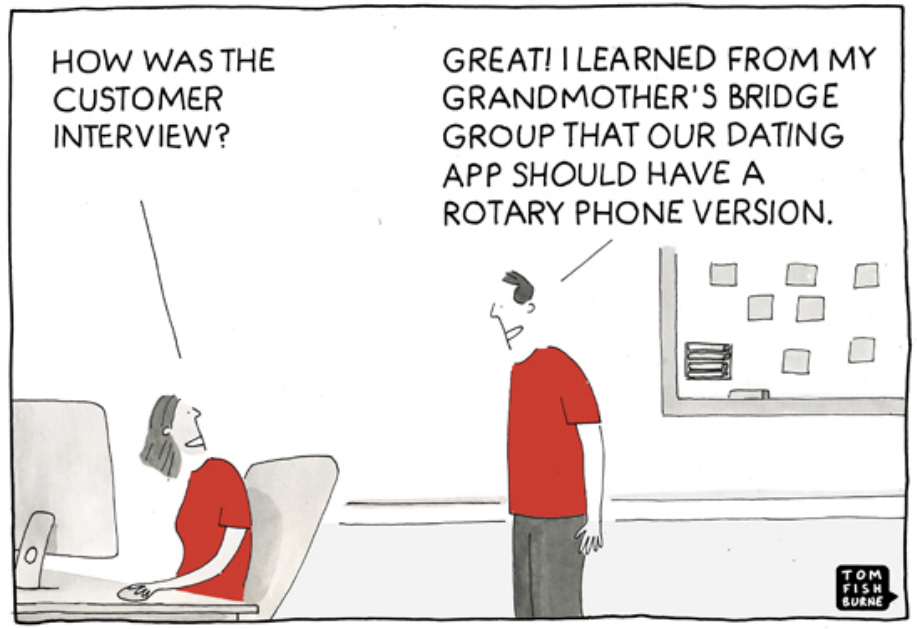
Nicholas, J. M., & Steyn, H. (2017). *Project Management for Engineering, Business and Technology*. Routledge.

Interviews

- Key QR methods: Interviews, Observation
- From Neck sections 4.6 and 7.6
  - Ch 4 – Design Thinking – Needs
  - Ch 7 – Experimentation – Feedback
- Different context, focus, methods
- Both Primary Market Research
- "Success starts with understanding your customers."
  - Giff Constable, *Talking To Humans*

Constable, Giff, et al. *Talking to Humans*. 2014. Open WorldCat, https://s3.amazonaws.com/TalkingtoHumans/Talking+to+Humans.pdf.

Interviewing “Do’s”



- Meet face-to-face, one-on-one
- Take notes, preferably done by an assistant
- Seek understanding, not answers
- Get stories, not speculation / prediction
- Use your questions as a guide, not a script – follow the clues!
- Be conversational and relaxed, but directed
- Actively listen and observe, “parrot”
- Record some basic, observable facts about your subject (don’t ask)
- Ask who else you should talk to

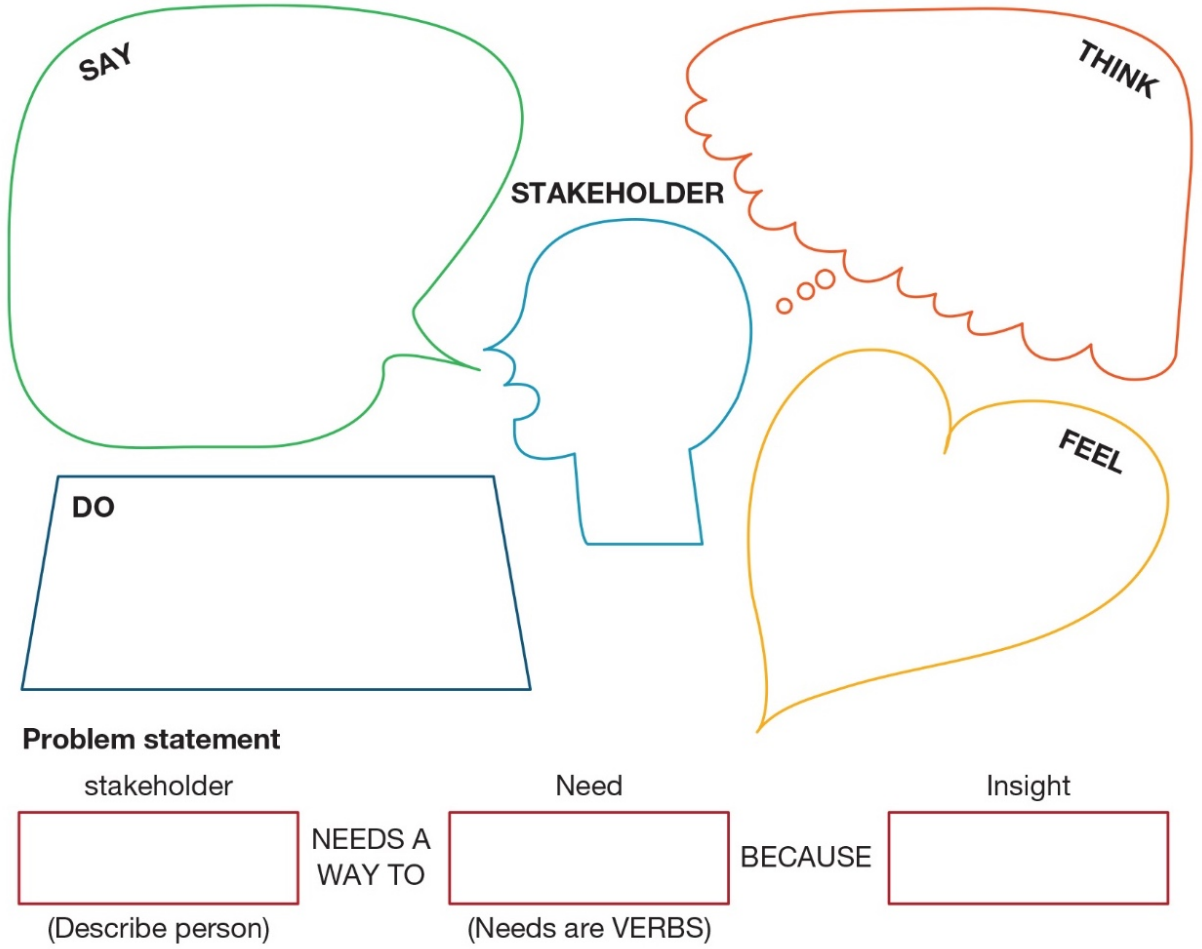
Interviewing “Don’ts”

- Record sessions
- Try to sell your idea
- Overstay your welcome
- Talk (interrupt, give answer / opinion, fill empty space) – Listen!
- Seek validation or get defensive / argumentative
- Miss / ignore important unexpected discoveries
- Talk about pricing

Empathy Map – Say, Do, Think, and Feel

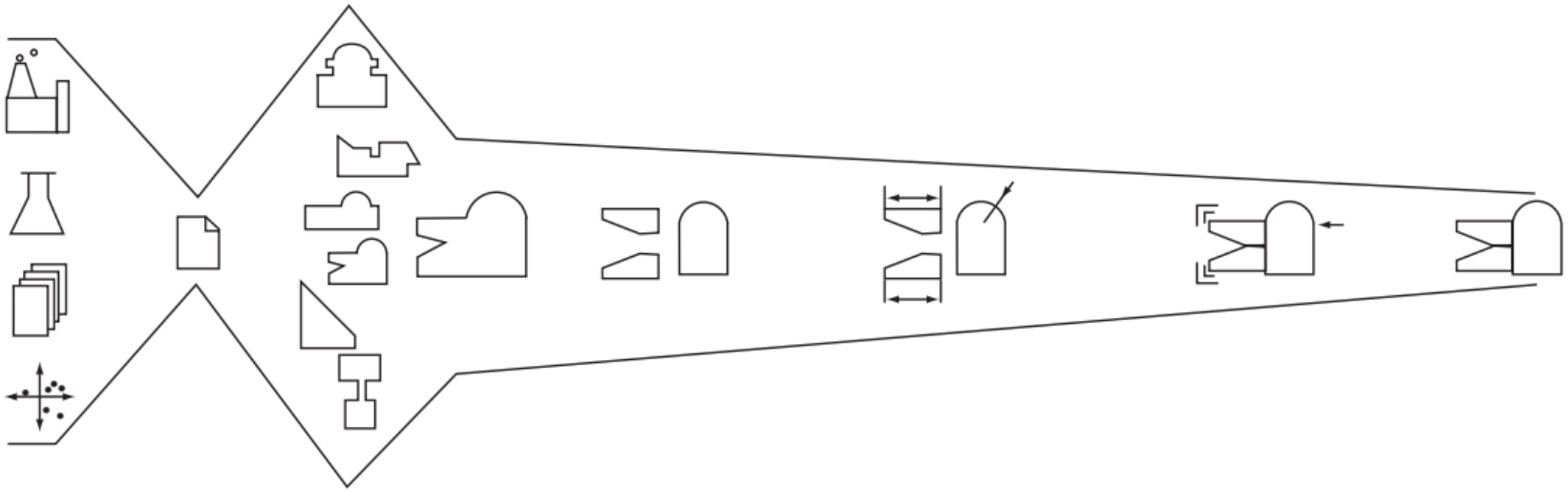
Structured Interpretation of Interviews

- Collate / integrate data
- Uncover surprising insights
- Identify:
  - Unmet needs
  - Frustrations, pain points
  - Areas for improvement
  - Different perspectives
- Question assumptions
- Get into someone else's head



Product Development Process

Ulrich Chapter 1, 2



What is Product Development (PD)?

The set of activities beginning with the perception of a market opportunity and ending in the production, sale, and delivery of a product.

- Economic success of most firms depends on their ability to:
  - Identify customer needs
  - Create products that meet those needs profitably
- 3520 focus has been on concept development – “front end” process
- Provide context and introduce topics that 3510 will focus on

Measures of Successful PD

- Product Quality
  - Ultimately reflected in market share, price customers willing to pay
- Product Cost
  - Determines profit for given volume and price
- Development Cost
  - Significant part of the overall investment
- Development Time
  - Determines firm's "responsiveness," and time to investment return
- Development Capability
  - Institutional knowledge and capability are important assets

Stakeholder Interests

- Stakeholder = anyone with a vested interest in the product
  - Development team wants to make an interesting product
  - Manufacturing community interested in job creation
  - Product users expect high safety standards
  - Regulators require compliance with myriad regulations
  - Executives insist the product is in line with company values / vision
  - Public expects the firm to prioritize sustainability

Stakeholder Categorization & Prioritization critical

Product Development Team

Interdisciplinary effort with three primary team functions

- Marketing
  - IDs customer needs and opportunities, defines market segments
  - Customer communication, pricing, launch and promotion
- Design
  - Engineering – mechanical, electrical, software, etc.
  - Industrial – aesthetics, ergonomics, user interface, etc.
- Manufacturing
  - Designing, operating / coordinating production
  - Includes purchasing, distribution, and installation (supply chain)

Challenges of Product Development

- Few companies are successful more than half of the time
  - Trade-offs – vehicle weight vs manufacturing and testing costs
  - Dynamics – changing technology, customer preferences
  - Details – which part to use x thousands of parts
  - Time Pressure – quickly without complete information
  - Economics – profit a function of costs, price, sales volume
- Further complicated by organizational realities – resources, agendas, leadership, priorities, culture, etc.
- All relate to problem-solving, decision-making; analytical and creative

Product Development Process

- Steps employed to conceive, design, and commercialize a product
- Benefits of a well-defined process:
  - Quality Assurance – checkpoints / gates build in oversight
  - Coordination – clarifies roles and expectations
  - Planning – includes scheduled milestones
  - Management – provides benchmarks for assessing performance
  - Improvement – via documentation and review
- Functions: information processing, risk management

Generic Product Development Process

1. Planning
   - Strategy → Opportunity Identification → “Mission Statement”
   - Target market, business goals, key assumptions, constraints
2. Concept Development
   - Needs identification and concept generation, screening, selection
   - Describe form, function with specs, benchmarks, and financials
3. System-Level Design – architecture, functional decomposition
4. Detailed Design
5. Testing and Refinement
6. Production Ramp-Up

Tailoring

- Particular processes will differ by unique context of firm and project
- “Tailoring” = adapting a generic method to specific circumstances

Process Type	Description	Distinct Features	Examples
Generic (Market-Pull) Products	The team begins with a market opportunity and selects appropriate technologies to meet customer needs.	Process generally includes distinct planning, concept development, system-level design, detail design, testing and refinement, and production ramp-up phases.	Sporting goods, furniture, tools.
Technology-Push Products	The team begins with a new technology, then finds an appropriate market.	Planning phase involves matching technology and market. Concept development assumes a given technology.	Gore-Tex rainwear, Tyvek envelopes.

Trends in PD Processes

- Design Thinking – user-centered approach
- Development Speed – digital facilitation
- Platform Leverage – modular components
- Outsourcing / Offshoring – globalization
- Lean Principles – production, startup, agile
- Open Innovation – open source, etc.
- Sustainability – environmentally responsible design
- Business Model Innovation – whole product view

Specs & Benchmarking

Ulrich Chapter 6

What are Specifications?

- Customer needs expressed in their native language, subjective
  - “the suspension is easy to install”
  - “the suspension enables high-speed descents on bumpy trails”
- Product specifications are specific, measurable, objective
  - Specification = Metric + Value(s) + Units
  - Ex: “the average time to assemble is less than 75 seconds”
- Must translate customer needs into product specifications, evolve
- Target Specs – initial, aspirational, prior to constraints
- Final Specs – end result of refinement, trade-offs

Collect Benchmarking Data

- Target specs relate user needs to competitive product position
- Data on competing products used to support positioning decisions
- User needs → metrics → benchmarks → specifications → design
- Online research and catalogs not ideal
- Purchase, test, disassemble, analyze
- Two methods
  - Benchmark against Customer Needs
  - Benchmark against Metrics

Dynamics of Product Specifications

- Target specs change for many reasons
  - Customers change
  - Competitors respond
  - Technical capabilities improve
  - Designs evolve as details develop
  - Tradeoffs and conflicts become apparent
- Start with marginal and ideal values (aspirational)
- Learn what it is feasible to deliver before setting final specs… When?
  - EARLY if competing on cost, performance; LATE if on market match

Concept Generation

Ulrich Chapter 7

Concept Generation

- Concept = approximate description of the technology, working principles, and form of the solution
  - Concise description of how the product will satisfy customer needs
  - Expressed as sketch / model accompanied by text description
- Product success depends largely on quality of underlying concept
- Relatively quick, inexpensive part of overall product development
  - Typically less than 5% of budget and 15% of development time
- Customer needs and target specs → Concepts for final selection
- Hundreds of concepts → 5-10 worth serious consideration

Design Freedom & Cost of Changes

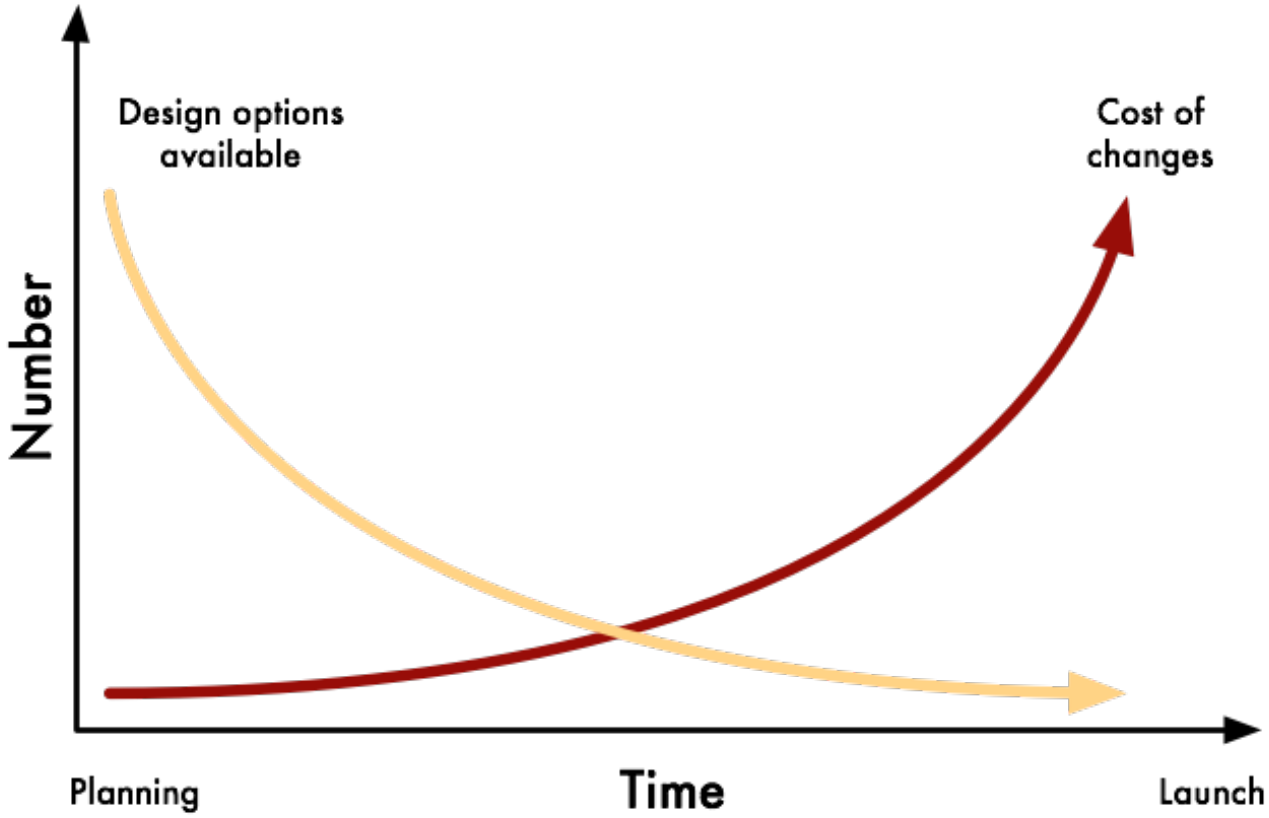
Cost of Change

Increases Rapidly

Number of Options

Decreases Rapidly

Explore Broadly Early!



Pitch Decks

Neck Supplement B

Presentations

- Components
  - Content – the information you want to convey
  - Script – spoken words that are the core of your presentation
  - Slides (“Deck”) – the visual aide(s) that support your presentation
  - Delivery – pace, dress, interaction, drama, style, etc.
- Content > Script > Slides
  - Must be selective
  - Script = content most important / relevant to audience
  - Slides = highlights and visualizations of script
  - Script ≠ Slides!

Guidelines

- Slides
  - Readable! 28pt minimum for standard fonts
  - Be visual – good graphics that support the story
  - The less words the better
    - Also harder – memorization, time constraints, confidence
  - Effective, attractive design
    - Use of color, consistent formatting
    - Choice and number of fonts
    - Leverage available templates, avoid stock template
  - Use animation sparingly (rarely)

Pitch Deck Design

- From *Entrepreneurship: The Practice and Mindset*
  - Sample pitch deck is not ideal – somewhat lacking in depth / detail, ignores earlier advice (font size, etc.)
  - Aim higher!
- Pitch – Very specific type of presentation
  - Act of clearly presenting & describing a product or service
  - Purpose is to stimulate interest, not to close a deal

Our Project Template

1. Title Page including Company and Product Name, Logo
2. Impact and Charter Statements
3. Idea → Solution → Concept
4. Innovative elements / unique strengths of the Business Model
5. Key Assumptions related to Desirability, Feasibility, Viability
6. Why Now? – Timing, Trends, or Competitive Advantage
7. Customer Discovery – Beachhead, End User Profile
8. Benchmarks
9. Team – Names and Team Role (not major / college)
10. Summary with Call to Action
11. Closing followed by necessary supporting slides