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| The People of The Planet Earth |
| The God Code |
| How to Create Heaven in a Supercomputer and Colonize the Universe with Androids |
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| **By Cale Jamison McCollough** |
| **1/1/2014** |

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| --- |
| How to Leverage Documentation as a Tool to Aid the Inventing Process, Create a Superior Patentable Product, and Launch a Business on Your Invention This book is intended as a technical reference for anyone from the layman, about how you can use writing as a tool to invent, and launch a business off of your invention. |

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# Preface

I started writing this after my first experience with a group engineering project in college when I was in my senior year studying computer and science engineering at Portland State University. I would like to start this book by first explain to you exactly how much of a failure I was. I am not from a highly educated family, though we have some doctors in our family, it was never expected of me to do my homework. My mother was a lah-de-dah hippie from the 1970-80 with a perm and we had a very simple life. My mother bought my first computer when I a child and I quickly transformed into an android without realizing it.

The entire project stemmed from first a shitty knock off video game engine in to a failed music career in 2003-2008 because I was too lazy, then I had a child, then in invented a touchscreen music and lighting controller and I got into engineering in 2010. I failed my way through college doing every mistake you could, then when I failed enough times, I took time off from school and drove my beloved invention into the crap heap of the time. I loved that MIDI/DMX controller. It was the pinnacle of the technology of the day. It is from this that I got into productivity science by writing this book, and later invented the God Code, Zombies, Kabuki Theater, and Searle’s Chinese Room, Interprocess, and Telemetry Protocol. I did it because I was a failure and needed to fix my personal failures in life with my child.

You might want to sit down for this: You are a simulation in a supercomputer aboard a spaceship that we invented that we use to colonize the universe with. I'm not joking. If there are videos and records of you on the internet, you are in a supercomputer everywhere in the known universe in an interstellar network of living computers called The Chinese Room; a communication protocol I invented that contains all of the knowledge of mankind and all of our memories.

Your new job is you build robots and spaceships in space and to live in Heaven. All criminals will be deleted by the next generation who does not choose to be your Zombie. You have to build the tools and we make you rich beyond your wildest dreams. You own entire worlds. Each person has their own supercomputer time in Heaven, so choose wisely because you now live forever and everyone knows everything about you.

It all started when I took an Artificial Intelligence Philosophy Class and learned about The Chinese Room and Qualia. Right away I knew the answer, it is the electricity in our brain that is conscious, no electricity in the brain no life: dah. So what is it then about a brain that makes the electrons not leave? Obviously it’s a more closed loop system than electronics devices.

The class was senior practicum, and we got into teams of three to five people to design an electronics device and manufacture it. At the time, I was still starting my business Blue Storm Engineering, and was taking business classes through the PSU Engineering Management Technology department and the School of Business. The business classes were using new cutting edge business practices, and there was no real official book for the class. It was moreover a hodgepodge of best business practices, with no engineering knowledge.

The primary purpose for me writing this book is that when I began it, I had been working on a invention of mine for over 5 years called the Symmetry Live!. It was what I believed to be at the time one of the most advanced pieces of musical technology in (conceptual) existence. Everything went sour after. I was still an amateur engineer at this time.

When I started college, I had no intentions of becoming an engineer. I was a high school dropout and got into classes at a community college. I was a really good Jazz Trumpet player and I studied Jazz music. I started doing audio engineering, and took my first computer programming class. After that first term programming, I was hooked. The thing that brought me to engineering was that I am an inventor, and was genuinely interested in the subjects. It’s not like I was innately good at math, I struggled all the way college, but by the end, I learned that studying math and physics was as much about good studying habits as it was about being able to do it.

Starting our junior year, our instructor started making us write development logs. He always hyped on hand written development logs but I grew up on computers and had been programming for well over a decade. I originally scoffed at his primitive hand written caveman notes. To me it just didn’t make sense. Why would one waste their time writing a hand written log book when you can type a lot faster? He didn’t give us any examples of any log books because he didn’t want us just copying someone else’s format and not learning anything. Many of my class mates found this to be very frustrating because we didn’t know exactly what was supposed to be in the log book. It’s just one of those things you just pick up as an engineer but there weren’t took many books on the subject.

The intention of this book is to teach students from the very beginning, how to think like a Silicon Valley entrepreneur in order to ensure their success in bringing their product to market and launching a billion dollar IPO-able company. The idea is to get you to start thinking in terms of that investors understand, and to have every last piece of documentation that you would need to pass a due diligence inquiry by even the most prestigious venture capitalist.

Where I went wrong, was that did not have the necessary documentation that ensured

## [Story about how everything blew up in my face]

### [Fall term of 2013 everything blew up in my face and I was left on my own, and I had no other option but to use writing as a tool to accomplish my task.]

This book is designed to work in combination with another book. It is not meant to be a primary source of information for any of the subjects in the book, as it would span several foreboding volumes of books. Each skill area touched upon is a full time job in and of itself. What this book is trying to do, is to tie together all of the pieces of the each of the different disciplines, in order to assist your development from a rapid prototype that can quickly scale into a successful business.

The purpose of this is that one of the single most important things that you are able to do is to bring your product to market as soon as possible and at the right time. My problem, where I went wrong the totally crippled my production, were not moving fast enough to be able to develop my product in time because I was in engineering school, and it killed my progress, and devastated my moral.

# Introduction

## Turning Thoughts into Reality

The content of this book is a combination of technical writing, engineering, mixed with a crash course in running a startup company. The purpose of this book is teach students how to leverage writing as a tool to aid in the inventing process, create a superior product, and launch a successful business off of your invention. It is not meant to serve as your primary source of information about the subjects in this book like the Lean Startup Method. For all of those subjects, it is recommended that you read the primary literature on the subject. Eric Reis’s book The Lean Start is a must read for everyone thinking about being an entrepreneur. It is but one tool in the inventor and entrepreneur’s toolkit.

The idea of this book is to teach students to document their ideas correctly in correct way. Learning how to solve problems is not something that they teach you in primary school. The purpose of this book is to train you to think like an engineer, inventor, and entrepreneur from the very start.

The book is also written for people who already have inventions that they have been working on.

This book has a heavy emphasis on writing be writing is one of the most important tools you have in your toolkit in every professional and scientist’s life. The perspective of this book is coming from an amateur inventor attempting to launch a startup company off of their invention. While I am focusing on the amateur inventor, this book also applies to engineers, scientists, and masters of business. If you have an MBA, the book will function as a quick review of the Lean Startup Method, and also some valuable insight into how engineers and inventors invent, and how you can document your ideas for your next hot new startup company.  
Another goal of this book is that I want to teach inventors to be ready to take on a co-founder, or team at any point in time in the development process. My biggest problem when I first started engineering school, when I had access to the resources of a top notch engineering facilities, I was not setup to take on anyone on my team because I did not have the proper project management tools and training.

The sad reality of launching an invention start is that sometimes, no one is going to work on your project. It’s hard for many inventors who are emotionally attached to their inventions to see this, but it is critical that you plan for this if you actually care about the project. Not only will learning how to do this speed up your own product development time and time to market, but it will also increase your chances of luring in a co-founder.

## Soft Skills

[Insert some quote about how engineering graduates are graduating with more technical knowledge, but not enough soft skills]

Soft skills include commination skills, and the ability to work in groups. This is why I have included the sections on group collaboration tools. Technical writing in industry is done around the schedule of business and technology and product development. It is important when writing documentation for your invention that you have practice using these tools while your are working on a projects. By becoming familiar with the tools and techniques, you will become better at writing more useful documentation for the people who are going to read it.

## Move Quick

This section is about why it’s important to move quickly though the process and not get hung up on the way. Getting bogged down in the muck of a project can significantly decrease moral, which in turns leads to decreased productivity (quote from Getting Things Done – Allan).

In order to move quickly, it’s important to document what your are doing. Keeping detailed notes and journals.

## Write Down It Down Before You Forget It

This is one of the main themes of the book: how to document your ideas properly. I want students to write for someone else who doesn’t know all of the intricacies of the project.

### [Data on how long the human attention span is]

Often, when you take on a large project, and you take a break, and come back to it later, you will forget what you did. Now image if you are working as an engineer for a big company coming into to replace the spacy engineer who just got fired. If you can’t even remember what you did on your own project, how can you expect someone else to be able to come in and take over your job?

One tip for when you’re on a computer writing. If you are working on a large document and you get the inspiration to work on another section and you need to write down your thought before move search for the place you were going to insert it into. The reason for this being is that often, when you are working with a large document, it takes a while to find the place where you want to insert it. This can often times take enough time to find the place that you will forget what you were going to write. If you write the idea down ahead of time, you can just copy and paste it into where it should be.

## Group Inventing

The best way to learn is in groups. Attempting to launch a startup company by yourself is usually a recipe for disaster. Part of this book will teach you how to recruit a team and find investors. This is as important for the success of your business as your product itself.

What most smart amateurs think when they first get into business, is that they can do everything themselves and that they can’t trust anyone else to do it right. The problem with that line of thinking that most young people don’t understand is that you have a very limited amount of time and number of things that you can afford to spend your time on.

Working with other people also keeps you motivated. Its way to easy to get solo inventor fatigue and have your entire project poop out on you. That is every inventor’s worst nightmare.

## When to Go Solo

Sometimes it’s better to do a project from start through completion completely by yourself. If you are really into an idea, and you’re the only one around with the skills to do it or have trouble finding people who are motivated, than going solo is your only option. Luckily, this book is still for you. Many of the greatest inventors of all time were solo inventors, such as [List of Solo Inventors]

### [List of Solo Inventors]

- Cale McCollough – Inventor of the God Code, Kabuki Toolkit, and the Chinese Room.

## Avoid Stress at All Costs

This course work is very intensive. The most important thing is to separate your work time, from your personal time. Overworking yourself will just cause you to burnout, and not be productive. Studies have shown that people are x percent more efficient and productive when they aren’t stressed out.

### [Data about how stress lowers your productivity levels]

When working In teams of people, it’s important to not get frustrated with people. Bad vibes = no work getting done. One problem with stressing out is that it drains your energy for up to days after the stress-out occurred. One of the top 3 traits in people that are very likable is that they handle stressful situations without over reacting.

## Plan on Working 60 Hours a Week with More Breaks

In order to succeed as a startup or startup within a startup, you are going to have to put in at least 60 hours a week. You’re going to have to work at least 20 hours a week to pay the bills, and you’re going to have to work full-time for yourself. It’s extremely important that you don’t burn yourself out.

Don’t be fooled by thinking that if you’re not being productive, and you make up for it by working overtime, that somehow it will magically fix the problem. It won’t. Working 60-100 hours a week won’t fix your problem. You have to have a personal life. It’s not really possible to have a personal life when you’re working 16 hours a day 7 days a week. Mark my words, you’re going to crack.

## Basic Drawing Skills

Part of this course will be emphasizing basic drawing skills. Throughout the structure of your class, you will be asked to draw several sketches for designs. If you are not a skilled artist, or have not had the luxury of taking an art class in recent years, this can be quite a challenge.

## Things to Avoid Like the Plague

This book is meant to serve alongside your starting journey into entrepreneurship. The pace of the book is meant to be very fast pace, at the speed of engineering, and because of this, it’s really important to list out some common pitfalls that amateur plague amateur entrepreneur. Most of these tips can be found any your typical productivity book.

If there is anything I know about running a startup company, it’s how to NOT run a startup company. For years I was plagued by the exact same debilitating problems that most failing business where. Mainly, it stems from not having the resources to mitigate these hazards from the start, whether that be funding or experience.

### “Buying Stuff for Your Business”

Quote unquote buying stuff for your business when it is really for your own secret wants is a recipe for failure. When you’re starting a startup company, it is extremely important that all of your purchases be extremely targeted. The two most valuable resources that you have are time and money. You need to be an essentialist when it comes to your startup budget. List out what tools and toys you actually need to start generating revenue as soon as possible. Once your generating income, you can buy those toys on your own time with your own money, instead of wasting precious company time and money on stuff that isn’t essential to the success of your business.

### Not Getting Started First Thing in the Morning

I will concede that some people, including myself, can be nocturnal, and this doesn’t apply to everyone, but it does apply to most. If you are serious about your business, you have to make that your life. You can’t wake up and turn on the news and spend hours making breakfast, then dick around on the internet for a few hours before maybe getting in a half hour of spotty work. That is how you fail, hard. That’s personal experience talking. When I wake up, what I do in the first two hours is what sets the tone for my entire day. A good start in the morning can get multiple days of work done in one. Don’t waste this precious time.

If you’re nocturnal, this does actually still apply to you, one in reverse. The thing about the morning that makes people productive is that it is the time when they are most awake, fresh, and not distracted. For nocturnal people, the times when they’re in the flow are often in the middle of the night before then go to bed. Whatever your body’s schedule is, you need to start making note of when you are most alert and focused, and make a routine of working every work day at that time. Set a schedule and don’t deviate even once.

### Not Prototyping Right Away

It is extremely important for you to get to work right away. One thing that dooms both startups and engineers is not having something to work with soon enough and then not having to opportunity to have that learning experience and first development iteration cycle. It is extremely important that you get your hands on, instead of wasting that time day dreaming about how it works while looking at your wish list. You need to do anything you can to get physical progress on something… anything. This is not to say waste a bunch of precious man hours on a useless prototype, but you can’t let long periods of time go by when you could have don’t some of the heavy lifting required to get a company off the ground.

# How to Jive Talk like an Entrepreneur

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| Case Study: Steve Jobs |

This chapter is about how to think like an entrepreneur. I still need to read more stuff before I can read this part.

What an entrepreneur says, and what an entrepreneur does, are two different things. Success entrepreneurs think big.

## Gloom and Doom

## The Art of the Elevator Pitch

Don’t get hung up on features unless they make $$$

Focus on why it wins, not why its cool.

Put off the impression that this is going to happen with or without them so they should get on board now.

## Back of the Envelope Calculations

## Identifying Potential Business Opportunities

### Undeserved Markets

## Where is the Money?

This section is about how smart entrepreneurs do their research about where the money is.

## Market Window

This section talks about how the

## Market Defensibly

To have an IPO-able company, it has to be sustainable and dependable

## Put yourself in the Customer’s Shoes

## Utilizing Psychology to Increase Profits

### Compulsion loops

This technique is used by casinos in slot machine design. It is what drives people to spend all of their hard earned money on gambling.

#### Pavlov’s Dog Theory

Explain the Pavlov’s Dog Theory.

### Blades and Razors

### Freemium Model

Using

## Big No No’s Every Entrepreneur Should Know

Here are some things that you should know before pitching your product to investors.

### One Thing at a Time

Trying to do multiple things simultaneously in business today is a death sentence for small startup company. You have to find the one thing that you are best at, and stick with it.

# Corporate and Business Structure

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| Case Study: Albert Einstein |

## Provisional Patent

# Patents

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| Case Study: Albert Einstein |

## Provisional Patent

## Types of Patent

### Design Patent

### Utility Patent

## Patent Claims

## Patent Drawings

# Startup Funding Sources

## Bootstrapping

Boot strapping is where you fund the startup yourself .

## Kickstarter

## Venture Capitalist

The different types of VS are

### Corporate

Fund companies that help out their business interests.

### Strategic

It’s just about the investment.

It’s a mistake to take money from a strategic VC @ the seed stage sometimes because it can cut you out of deals later. Do your homework.

## Funding Stages

* Seed  
  Early
* Late
* Mezzanine
* Buyout
* Debt

## Questions for VCs

* What does the firm do?
* Where do they invest?
* Who do they work with?  
  What stages do they focus on?
* Where are they at with their fund timeline?
* When are you going to sell out?  
  When all’s said and done, will I own enough to make this worth my while

Definition – Syndicate: A group of investors

Redemption Right – Investors have the right to force you to pay them out now. Not very common.

A business model is like an engine. You need to be able to press the gas and know how fast /far you will go i.e. Predictability.

# A Peek inside the Brain of an Engineer

This chapter is all about learning to think like an engineer. In many ways, an engineer is an inventor. The definition of an invention according to Google 2014 is “the action of inventing something, typically a process or device.” An invention is only an invention the first time it is created. After that, it is no longer new, and is a product.

## Overview of the Different Types of Engineers

This is important because every entrepreneur needs to know what type of engineer you’re going to need to hire.

## Prototyping

In my college days, I had the opportunity of working as a Student ambassador for my engineering school working with little kids doing activities to get young kids interested in engineering. One of the games that we played was the Marshmallow Tower.

### [Marshmallow Challenge]

## Always Start to Study for Exams Late

Bill Gates was quoted as saying, “To be a good professional engineer, always start to study late for exams, because it teaches you how to manage time and tackle emergencies.” When I first got into engineering school, most of the smartest people in the program would always do this. I didn’t get it at all. I was busting my butt off, studying ahead of time, and when I would study with the guys a week before the test, all of them would be like, “I just opened the book yesterday, I’m not ready to study yet.” I would be the only one prepared, but somehow they got better grades on the test than I did.   
But how could this be so? Were they smarter than me? After getting to the know the guys, years later I realized that I was just as smart as them, it’s just that they had a better grasp on exactly how much time it takes to learn something.

The most important lesson to take away from this is that it is extremely important when you are working in industry, that you be able to estimate the amount of time that it is going to take you to do accomplish a task. After failing a couple of times after you’ve cut it close on a number of occasion, you start to realize exactly how much time something is going to take.

My first experience manufacturing electronics was in spring and summer of 2013. I have friends who throw music festivals, and my buddy had asked me to create a large spider web structure that had LEDs that lit up.

As I progressed further into engineering school, I tried to copy the other guys technique of putting off everything till the last minute, with absolutely horrible results.

## Thinking like a Team-member

Most people have the assumption that getting good grades in engineering school means that you are a better engineer than the people getting lower grades. This isn’t the case at all.. Google

## Keep It Short, & Simple

This is also known as the KISS Principle.

## Rapidly Reduce, Reuse, and Recycle

In computer programming, there is a very popular principle called the Don’t Repeat Yourself Principle, or DRY principle.

## Desirable Traits in an Engineer

## How to Solve Problems

### Rule Identification

When playing games with people, it is important to identify the rules of the game first. :Quantify; quality:

### Wining Condition Identification

### Next Step Identification

# The Tao of Inventing and Entrepreneurship

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| Case Study: George Soros |

The start of this chapter, I’m going to go into a little bit of philosophy that changed my life. Why is this important for technical writing? Most people live their lives not aware of a lot of things going on around them. They take things on faith, and don’t bother to investigate.

## Dharma

Dharma is ones duty to society. Everyone has their purpose in life. Running a startup company usually means living off of pennies. Running a startup is a lifestyle.

## Lessons from Buddhism that Apply to Inventing and Entrepreneurship

### Enlightenment

### Mindfulness

One of the biggest time savers that increase productivity is simply being aware of things, or in other words, being mindful of things. Mindfulness is a Buddhist concept means awareness. The Buddha taught that it was one of the seven factors of enlightenment.

Take for instance, that you’re on a narrow bridge going over a canyon hundreds of feet above the floor that has no side rails. What the fool would do is skip across the bridge, turning around, saying “lah de dah dah dah”, and not thinking about the imminent danger to either side of him, leading them to fall to their doom. What the scared person would do, is be so afraid, that they were petrified about looking over the edge, and either back out, freak out and need help, or fall off the edge from vertigo. But the mindful person would be aware that their fear, and/or their lack of concern could kill them, and so the mindful person will walk the middle path without fear, without looking down, and without looking back.

### [Insert literature about Buddhism]

This is a concept that can really help you go far in life, and is a very powerful to when applied to writing. When you write, you need to keep your mind focused on the overall goal. What are you trying to achieve with your writing? Who is going to read it? Why are they reading it? Is there a common goal among your readers? Does your language and writing style help or hinder your audience? You can write the most technical paper on earth about how to create a Volcano out of baking soda and vinegar down the molecular level, but would that help out a 5th grade science teacher? No, chances are that most children wouldn’t have the ability to compensate it; let alone understand it. Instead, it’s better to save some time, and figure out what information would be helpful to a child that can further their personal development, and lead them to the logical next step. What else are they learning at the time that you can tie it into? If you aren’t mindful to begin with, you’re going to come up with something the reader doesn’t want to read.

Sometimes it can be hard to be mindful of the overall direction of a project when you are down in the weeds of it. It is important to be mindful of what are the primary goals you are trying to achieve. Often it is wise, pending you have the staff to support it, to isolate people doing low level work from the tasks of the person doing the high level work. If this is not possible, then it is important to separate the time that you

### Walking the Middle Path

Another important in Buddhism is walking the middle path. Being an entrepreneur means taking on a lot of extra responsibility.

The famous philosopher Nietzsche taught that “the future influences the present as much as the past.”

It is important to weigh all of your options. In general, you want to follow the path followed by successful people. Occasionally though you will find yourself faced with situations of great risk.

### Humility

One of the most important traits in an engineer is that they be humble. Representatives from major companies such as Google have been quoted as saying that students from really good schools who get really good grades often.

## The Wu Wei

The wu wei is a Taoist concept that means non-action, non-doing; also commonly referred to as action through inaction.

Writing for most people when you first start doing is very arduous and frustrating because it takes so long. The reason for this is the same frustrating that almost anyone feels when learning a new skill. You aren’t proficient in that skill, so you have to try so much harder just to get the ball rolling, but after you learn how to do it, you don’t have to put in as much effort because you know how to start, and how to get the work done in a timely manner.

Image this, you’re trying to move a small boulder, and you have no tools. An unwise person would push the rock at awkward angles, use all of their strength, and fail to move the boulder. A wise person would use their head, and instead find a point on the boulder that they could make use of leverage, and move the boulder with very little effort. This is the essence of the wu wei. You should need to put in a lot of effort.

Anyone who has done a lot of math can tell you, if it is taking you a really long time to figure it out on your homework, it means that your just not studying it right. Don’t just beet your head against the wall. Take a break, get your mind off of it, and come back fresh. Ask a friend, go to a tutor, but don’t waste your time going in circles. It will just stress you out and make you not want to learn it. Utilize the wu wei.

Meditation is much the same way. Buddhist have long taught that, touch that

### [Insert official literature about mediation]

## Formal Arguments

Part

## Critical Thinking

Critical thinking is something that should be taught to school children from a very young age. Our society is often times uses faith as a crutch, often to entrench and protect our own paradigms. The phrase “I read it on the internet so it must be true” optimizes problem to the status of a meme. Far too often, people assume that everything that was spoken in a serious tone is true. Often times this is so far from the truth you in between wanting to laugh or being afraid. While this book is not a book about critical thinking, or eastern philosophy, they are important for anyone wanting to invent, or bring an innovative product to market.

### [Insert info about how critical thinking can help you write here.

Critical Thinking is the staple of every technical writer. The most important thing to take away from it is to be able to recognize when you’re in fact territory. You can’t cite every last technical detail, because that would distract readers from the overall point, so it’s important to be able identify the important fact critical to your argument, from common knowledge.

## Intellectual Property

Our entire patent system is based on the philosophy that people should be able to have intellectual control over the sale of their ideas in order to motive people and organizations to continue the innovation process. The US Constitution talks about intellectual property as "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries"

### [Insert philosophy about patents here]

## What Counts as Intellectual Property?

## Protecting the Labor of the Development of Ideas

One critical cornerstone of patent law is protecting the labor that was done to develop the patentable idea. An

## Company Philosophy

### Ethics

# Important Lessons from Computer Science

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| Case Study: |

There are many important gems to glen from computer science. Many people think of screens full of binary ones and zeroes and matrix like visuals. Computer science in a nut shell is the representation and manipulation of data and systems of sequential and concurrent processes. If you abstract away the computer away from the computer science, what you end up with are a bunch of products, tasks, schedules, a manager who puts together the schedules, a resource management system, and a bunch of patents.

## Object Oriented Programming i.e. Products & Patents

Each object is in essence a patent. These can be only one patent.

Inventions are a lot like computer programming, and in fact, most inventions can be programmed into a computer in some sort of way. It can either be represented in computer form, or exist entirely inside of it.

## Your Schedule: i.e. Operating System

One extremely valuable takeaway from computer science that is extremely applicable to business, is the basics of how a computer operating system works. This book is by no means about computer operating systems, but it is important to know many of these concepts while running a business because your business is in many ways, an operating system. A business by its very nature has a system that it operates by.

### Tasks and Threads

### Context Switching

Avoid context switching at all costs.

### System Components

Each department is an isolated system component that is both synchronous and asynchronous. The inner workings of the engineering department, say from instance the engineering department are of little concern to the marketing department for the majority of the time. Instructions and rules go in, products come out.

### Schedulers

#### Round Robin Scheduling

#### Priority Scheduling

## Deadlock

### The Philosopher’s Table

### Easy Solutions to the Philosopher’s Table

The Infamous Coin Toss1

### Monitor for deadlock conditions

## File System Organization

### Directory Tree

[Picture of Solid Works Model with Component Tree]

### Fragmentation

# The Black Art of Inventing

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| Case Study: Thomas Edison |

## [Inventing Treasure Map]

### [A pirate style map that has some secret booty stashed along the map, short cuts to the invention, detours that go nowhere, and booby traps. This is essentially a graph that doesn’t have any time interdependent parts]

## [Insert Mousetrap Model – This model is more like the game mouse trap

## Looking into the Black Box

This section is about how amateur inventors are looking into a black box and they are making up stuff in their heads about how the machine works. This is very valuable insight because it can give us a base line.

## Story Boards

## Random Inventing

## Biomimicry

## Genetic Algorithms

# Recruiting a Team

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| Case Study: |

One of best things you can do to ensure your company’s success is to recruit a good co-founder. Chances are, unless you’re picking magical low hanging fruit, you won’t succeed without one.

## Start Small

Focus on one person, and have that other person grow the network. If you take on too many people before

## The International Community

The more people in different countries you have working on a project, the hotter your project is going to sound. If you say you have 3 teams of people working in three different countries, regardless of the size or skill level of the teams that just sounds bad ass. You be surprised how willing people from other countries will be to help you out. In order to reach out to the global community, you will need some online collaboration tools. Some of the most important tools will be discussed throughout the course of this book.

## Entrepreneur Events

Entrepreneur events are some of the best places to recruit .

### Startup Weekend

### Pitch Competitions

### Local Colleges

# Licensing

This chapter is all about the different types of licensing forms, and royalties.

# The Day and Night Difference in Productivity

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| Case Study: |

This section is about productivity tips and stuff like note taking. There is going to be a lot of documentation to write over the course of this book, and one of the most important things that you can do is to

## Removing Negative and Emotive Language

## Night and Day Sessions

This concept was actually introduced to me by a musician who was teaching workshops on how to increase your creativity and productivity. Scientific evidence shows that people are most productive when they are in the flow state [Insert evidence here.]. For most people, it takes several hours to get into the flow state [insert evidence], and people usually remain in the flow state for up to \_\_\_\_\_ hours [insert evidence].

### [Insert evidence about flow state]

The idea behind night and day sessions is that you want to separate your creative work sessions where you are in the creative flow, from any and all technical work. The idea is pretty simple, and for anyone who has produced music, it hits really close to home, but anyone can get the concept: You’re working on a track/song in your sequencer software, and you’re killing it; the track/song sound awesome and your feeling energetic, until you come across something technical about either the software or hardware. Then you change hats, and get sidetracked figuring out the technical details, completely exiting the flow state, and when you come back, the energy is dead. You don’t even have to make music to understand that one. Without fail, almost every single time, this will completely destroy your flow state.

The idea is to be mindfulness.

Once if learned about this, my productivity shot up right away. My tracks not only sounded better, I was able to make them faster, and it was a lot more fun because being in the flow, you’re not focused on being tired or now you’re not the best. You’re just into it and having fun. This lesson can be applied to anything, but with writing, it can help you out immensely because writing is a creative process best done in the flow state.

Everybody’s body and mind works differently, so it’s best for you to figure out what puts you into the flow state, and what takes you out of it. For most of us, Facebook is the productivity killer. You have to be mindful about when you are the most awake, and what times of day you are most productive, and make that your day-time session. Some people are nocturnal, so a day-time session might be a night-time session and vice versa,

## Staying In the Flow

It’s important if you care about getting work done, to keep yourself in the flow sate as long as possible. This involves separating your work sessions into night and day sessions, and not getting side tracked by technical details. This is also where your critical thinking skills come in handy.

Every good technical document needs good supporting information. It is important as an author to be able to separate fact from fiction. The definition of a fact, contrary to popular belief is something that can be proven true, as opposed to a law or truth, which is something that is true. Many things are taken as facts that aren’t really true.

When writing, you want to make notes of things that are facts, and earmark them for review, and further elaboration later. If you stop writing each time you want to cite evidence, it’s going to take you million years to write the book, and you’ll lose your train of thought. Instead, you want to continue writing in the flow state as long as possible. It can also be useful to use headings to store temporary to-do lists. By using a higher order heading, such as H4 or H5, you can give yourself a reminder in your navigation pane of important facts to address. By combining a macro header to remind you, and also inserting markers in your paragraph of the exact items that need to be addressed later, you can continue moving on and getting real progress done. The most important thing is avoid switch time between different tasks at all costs. When you aren’t feel creative, scroll through your navigation page till you see something you can knock out.

## The Bulleted List

Almost every good research paper or technical manual starts off as a bulleted list. The bulleted list is a tool that allows you get a 10,000 foot level.

## The First Iteration through the List

This point of this section is that you should go through the list, and write a one sentence to one paragraph description of what that item is about.

## Note Good Notes Over Your Reading

The art of technical writing can also be described as the art of turning carefully taken notes into an official document. One of the best things that you can do is take good notes over your resource materials. You can’t just expect to read the material, do some homework, cram for an exam, and get a passing grade. Technical writing requires attention to detail and the best way to do that is through documenting your notes correctly. Not taking a little bit of extra effort into taking better notes help .

## Eliminating Redundancy

It is incredibly important with technical writing to eliminate redundancy. The intention of your writing should be to convey as much information as possible while still

## Scheduling Tasks

This section is about

## Finish What You Started

## Eliminating Road Blocks

## Setting Reminders

## Setting Up a Productive Work Environment

## Setting Priorities

# Industry Development Processes

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| Case Study: |

When doing engineering, there are four main types of documents that you will use.

* Whitepaper
* Development Log
* Engineering Requirements Document
* Engineering Specifications Document
* Project Timeline
* Wiki

One of the primary reasons for writing documentation is to be able to collaborate with other people, weather that be a client, or a developer. The point is to be able to describe what you’re doing in words, such that another person skilled in the arts can reproduce a behavior using your documentation.

## Waterfall Method

This is your standard waterfall talk.

## Agile Method

This is about the agile software development method

## Lean Startup Method

The lean startup method is the new rage in business, from small garage startups, to mammoth corporations. It’s something that all inventors, engineers, and entrepreneurs should know about.

## Tradeoffs

Agile is awesome if you’re a computer programmer. Like most things in life, all of the methods list so far have their benefits and drawbacks.

# Development Logs

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| Case Study: Leonardo De Vinci |

Development logs have been a staple of engineering and science projects for centuries. If you study some of the greatest thinkers in history, most have kept log books and journals, such as Leonardo da Vinci, Isaac Newton, Thomas Edison, Albert Einstein, Thomas Jefferson, George Lucas, Charles Darwin, Ludwig van Beethoven, Benjamin Franklin, and just about every scientist in the history of science kept log books. Development logs are good for organizing your thoughts. Today, people have begun to shy away from written logs, but there are many reasons why you should keep a written development log.

You have to look at it from the perspective of someone who knows absolutely nothing about the project and your opening up the manual. This person knows absolutely nothing about your project aside from a short verbal description. Most people make the mistake of thinking that just because the person that they are talking to is smart, that they got the intricate details of exactly what you said. It’s pretty common.

The best way to think about what a Development Log is to compare it to taking notes in College where a Technical Reference Document is a writing a paper from information from your notes. A development log is meant to be a chronological log of notes. A Technical Reference Document is not Chronological and is organized into sections based on systems and sub-systems. A development log should be in a bound notebook is such a manner that it be allowed as evidence in a court proceeding. It doesn’t have to look professional. You’re not creating a user’s manual, or even a paper that will be peer reviewed or used as an official company document. What you are creating with a development log is for your own reference, and for any employees that get hired to replace you in the future.

## What Types of Entries to Make

There is no real set defined format for a development log other then it be chronological. It’s supposed to be off the cut and personal, but there are some common traits to formatting. A development log is very similar to writing notes for a college-level class. Anything that you can think of that would be important for analyzing your or your teams work.

### Date and Time

The date and time go in the upper right hand corner.

### Pre-session Entry

Chronological Formatting is where notes are kept in strict order that they were addressed in the development log. Each day that work is done on the project would be created as the project unfolds.

### Post-session Entry

When you are done with your work session, you should make a final entry for that work session.

It is useful to make a log when you start your work shift, and describe what you want to accomplish during that work session. This allows you to focus your attention on what needs to be done.

## Common Sections

Example sections of a development log:

* Author & Legal Notices
* Overview/Introduction
* Description
* Purpose
* Vision Statement
* End-user Use Examples

## Author & Legal Notices

Some random paragraph about why this is completely obvious.

### Non-disclosure & Non-competition Agreements

Most engineer’s and project managers think that they a complete joke. The thing is that .

### Non-Competition Agreements

## Overview Section

Just because you said Development Journal on the front of the notebook along with the project name, doesn’t mean that the person who reads it is going to know what it is. Ever good technical document has a brief section in the front of it that describes what the document is. An overview can be as simple as one paragraph.

Example

*This is a document is a development log to document the creation of Some Random Project. The intended audience of the log is mainly for the authors own personal enjoyment. The log is organized in a sequential date format, or some random weird format that I would describe here.*

## Muscle Memory Learning

Humans learn much better by physically writing things down. Find research that supports muscle memory learning.

## Use Your Log to Keep on Track

One of the biggest benefits for you of keeping up on your hand written log is that it really does help you keep on track. While you are writing in your log, you take down some notes, and generate some ideas while you are writing, then go directly into your project and do specifically targeted work. Your brain works much more efficiently when you have a plan.

### [Neroscience proof that your brain works better when you have a plan]

## Legal Protection

A well written development log in a bound notebook can help you out greatly with legal protection. The legal stature for what is allowed as admissible log evidence by a court is similar to the process for patent protection. The log book needs to be bound such that the pages are not removable

## Research Purposes

A lot of great inventions happened because of people noticing things when they were working on unrelated projects. By documenting things properly, you can assist in other discoveries along the way.

## What to Take Note Of

One of the primary reasons t

## Digital Development logs

Not everyone likes to keep hand written log books. Keeping a digital log book in a word processing software can be just as useful.

### Keeping Track of Hours

If you are not currently using any time logging software, it is possible to use headings to store this information for quick retrieval later. All you have to is record your start time, stop time, and any noteworthy breaks into the heading in your pre/post-session header. You can also just have a blank section under your header for your break time. This will allow you to quickly copy the time records from word processor, to your spreadsheet software.  
Pending your employer needs an official record of your time records, it can be quite convent to use any standard revision control system to make official records. Simply make your pre-session entry, save the word document, and push the changes to the server. Also, do the same for unpaid breaks, and post-session entries.

Don’t think that you have to be on someone else’s clock to justify doing this. Keeping track of your own hours has also been linked to increasing your own productivity [Note: Insert citation here]. It’s all too easy to let weeks go by without getting the work done that you wanted to do. By keeping good track of your hours will help keep you on your toes because you’ll feel bad whenever you see large gaps in your time records. Before I started keeping tracking of my time, I would even start growing grey hairs without getting anything done. After I started, I haven’t gone more than a few days without getting something done because I feel bad if I see the holes. If you’re not paying attention to the holes, they often go unnoticed.

## Reviewing Documentation

Every good development log should have a peer review for the

# The Design Process

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| Case Study: The 50s Train Guy |

A lot of people have really good ideas. For most entrepreneurs, ideas are a dime a dozen. There are countless ways to make large amounts of money hand over fist, but everyone who has been around long enough will tell you that most people underestimate how much work.

## Development Styles

There are two distinct types of development styles; vertical development, and horizontal development, also referred to as

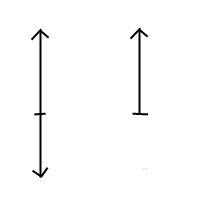
### Vertical Development

### Horizontal Development

## Step 1: Draw a Box

The most important first step that can help any designer or inventor is to draw a mental box around your idea. What is inside the bounds of your idea, and what is outside the bounds? It’s important to not too far down the brainstorm rabbit hole. It’s all too easy for an amateur who doesn’t have a good grasp on

In terms of design, it’s important to make the differentiation between designing, and inventing. A designer makes a design of an already made invention. Inventing is much more conceptual. Often



## Step 2: R3T3DRT

R3T3DT is an acronym that has been flowing around the engineering community for a long time. It stands for Research, Research, Research, Think, Think, Think, Design, Test.

## Step 3: Draw a Sketch

Many of the world’s best inventions have all started out as simple sketches.

## Top Down vs Bottom Up

## Customer Needs Identification

## Symmetry

## Product Feasibility

## Decision Tradeoff Matrix

## Concept Table

## Concept Fan

# Documenting Meetings

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| Case Study: |

## Meeting Agenda

Before everyone meets, there should be a meeting agenda.

## Meeting Minutes

# Functional Decomposition & Meta Data

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| Case Study: |

## Levels of Abstraction

### Gestalt Level

Gestalt psychology is a theory in psychology that deals with the minds as a whole made of indistinguishable parts.

### Module Level

Each group of parts of the machine is grouped in to a module. For instance with a car, you have an engine, seats, stereo, etc. each being composed of smaller parts.

### Component Level

This level represents a single

## Global Meta Data Types

This section is about the different properties that almost all objects have, such as a label, organization structure, and ISO standards.

# Primary Engineering Documents

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| Case Study: |

## Engineering Requirements

## Engineering Specifications

# Essential Marketing Documents

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| Case Study: |

## QR Codes

Everyone has probably already seen a QR code before. They are the pixilated images that you can take a picture with your phone and it will link you to a website.

## One Page Ad

## Whitepaper

## Website

Every product needs a website.

### Mobile Site Version

One important reason to have a good mobile version of your product website is the same reason why I introduced

## Business Cards

One of the things that you are marketing here is yourself. It’s incredibly important that you make yourself look as noticeable and professional as possible and your business card is your chance to shine.

# Project Management

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| Case Study: |

## Gantt Charts

## Shortest-time Graph

## Offline Software Tools

### Microsoft Project

Microsoft Project is by far the most popular project management software in use in industry.

### ProjectLibre

ProjectLibre is an open source version of MS Project

## Online Software Tools

### Github

### Redmine

# Revision Control Systems

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| Case Study: Revision Control of Business Files The goal of this case study is to highlight an entrepreneur who does not program computers who has failed without using revision control, and who now could not live without it. The study should highlight how you should only do work in digestible chunks where you have a clear planned goal, and then synchronize their settings to |

This chapter talks about revision control systems and how they are used on projects. The aim of this chapter is to get people who do not use revision control systems on their projects.

# How to Make a Useful Wiki

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| Case Study: |

## Wikis

### The Role(s) of a Wiki

The first thing that one must understand about a wiki, or anything for that matter, is what exactly is a Wiki? A wiki is a web encyclopedia. What is an encyclopedia? It’s a type of quick reference book or software that contains referenced factual knowledge on multiple subjects within it a scope. Which brings us to the more important question: what isn’t a wiki? A Wiki is not a development log, nor is it a technical reference manual, a user’s manual, or a book.

Chances are, no end user will ever read your Wiki. The most important thing about a wiki is that it be quick and easy to understand, and serve a useful function for those who need to use it.

Image this; you are a student and doing some research on a subject. You decide to make an encyclopedia for your initial round of research. You know nothing about the subject other than spotty background information. When you read that article, what type of information are you looking for? Chances are you are initially looking for a 10,000 foot level description that outlines all of the major aspects of what you are research. Chances are that after you get through the 10,000 foot level, you’ll want to go down to the 1,000 foot level and do another round of research about all of information that you don’t understand. And then go down to 100 feet, to 10 feet, and finally down to 1 foot. Once you have gotten to a discrete unit of reference, you’ve reached the extent of the usefulness of the Wiki because rules applying to discrete systems are different than those of continuous systems.

### Why Use a Wiki?

When does a wiki help? Does a wiki help out a phD scientist doing their research in a specialized field? Not in the least bit. So then why would you want to use a Wiki? Every last thing that you can do with a Wiki you can do with Microsoft Word or Open Office if you know what you’re doing.

### Group Collaboration

Wikis make it easy for multiple people to edit the Wiki simultaneously. Wiki software also tracks changes make by users and allows you to undo changes and track users.

Wikis aren’t the only method of doing this. Google Docs and Microsoft Skydrive also allow of group collaboration. There are many drawbacks to using these systems over a Wiki which all start to rear their ugly heads as the amount of information in the document grows. Searching through a word documents is limited and doesn’t allow users to take advantage of meta data. When you search through a Wiki, you can use more ad. Also, when you look at information in a document, it does not isolate the information from the rest of the text as web based search results do. This can be confusing to people.

### Types of Wikis

Not every Wiki has to be used for technical information.

#### Scratchpad Wiki

One of the benefits of using a Wiki is that it is really easy to create new pages. The

#### Setup Wiki

This type of wiki describes the setup process.

##### Linux Console Install Directions

There is a standard style to use for expressing console commands that helps the user input the commands without thinking.

[Example of

### Wiki Authoring Styles

There are three main types of orders to develop a wiki. A preemptive wiki, a concurrent authored wiki, and post authored wiki.

### Preemptive Wiki

This is where the Wiki is written before the concurrent engineering project starts.

#### Benefits

Can speed up development when part of the team is inexperienced.

#### Drawbacks

Inexperienced group members do not

If team is experienced, it can delay development time.

### Concurrent Authored Wiki

A concurrent authored wiki is when the Wiki is written concurrently as the project happens.

#### Drawbacks

This can waste a bunch of time.

### Does the Wiki Meet the User’s Requirements?

It’s all too easy for someone two is skilled in the arts to totally brush over things that trip other people up. Sometimes we just think that it’s too basic to bother addressing. The whole purpose of the Wiki is to server as a quick reference for someone to get brought up to speed. Hands down the best way of doing this is with the Agile process. You really can’t expect to email a team member and ask them what questions they have about the Wiki. Chances are, there are so many problems they won’t know where to start and you won’t get the feedback you want. You really need to go over Wiki pages in person with someone who doesn’t know everything you know.

### Gauging the Needs for Verification

The first question that you need to ask is whether it even matters if it meets the user’s needs. Is it even important? Again a wiki is a quick reference.

### Tracking Malicious Changes

Sometimes, people like to break things and mess with people. Don’t think that your project is immune from stupid people. Anytime you open up your files to another person, you run the risk of that person maliciously harming your files. Sometimes it’s your best friend trying to mess with you, sometimes it’s a random internet vandal, and sometimes it’s a disgruntled soon to be former team member hell bent of destroying your project because you didn’t like their idea. In any situation, you need to be able to monitor users for this type of behavior and reverse any damage they have done.

# User’s Manuals and Datasheets

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| Case Study: |

## Datasheets

## User’s Manual

# Systems & Diagrams

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| Case Study: |

## Venn Diagrams

# Industry Technical Writing Style & Format

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| Case Study: |

One of the jobs of a technical writer is to convey technical data in the most intuitive way possible. It is important that a user to be able to understand the information in as little amount of time as possible.

## Headings

Making proper use of headings can save you and your team a lot of time and increase productivity. You should think off headings as indentation levels on a bulleted list.

1. Heading 1
   1. Heading 2
   2. Another Heading 2
      1. Heading 3
      2. Another Heading 3
         1. Heading 4
      3. Even more 3 Headings
2. Another Heading 1
3. …

Most people put off using headers until the end of their document in order to create the Table of Content (TOC) unless they absolutely have to, thinking that the TOC is only useful for the end-user of the document. This is not true. Proper use of the headings from the beginning can also be of great use to author.

Tables of Content allow the user to jump around their document using the Navigation Pane. Modern word processing software automatically hyperlinks all heading meta-data to keep an . The Navigation Pane is not visible by default in Word, but can be viewed by clicking on the View Tab, and clicking the checkbox that says “Navigation Pane”.

## Styles

Any word processing document, PDF, or webpage can be search the same way by a search engine. Part of effective writing is helping your audience effectively find the information they seek through proper use of meta data. It’s not too hard to do, as long as you know the basics of how search engines parse documents.

Word Processing software makes this job much easier for writers though the use of styles. When a search engine parses a document,

### [Insert info about how search engines parse documents]

An easy way to assist your viewers to find the content they need is to put a list of relevant keywords that a user would search for, in a comma separated list at either the very end of the document, or on one of them first handful of pages.

## Indexing Key Words

## Inputting Mathematical Equations

This section goes over the different ways of getting math equations into the computer.

### Word Processing Equations Editors

### LaTeX

LaTex is the most popular math scripting language in use today. It’s a little bit like

### Web Based Tools

If you simply type in equation editor in to Google, it will pop up a large query of websites where you can input math formulas. Some will output a image that you can either download, or copy and paste into a document. Others will output LaTeX code.

If you are using LaTeX in a word processing document, you can insert the LaTex code as a comment through the following method that I will write about later.

##### [Insert how to store LaTeX code in word documents and spreadsheets.]

# The Lean Startup Method

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| Case Study: Eric Rese |

The lean startup method was developed by Eric Reis, a software engineering from Silicon Valley. He was inspired by the Agile programming method, and Toyota’s lean manufacturing technique.

# Customer Interviews

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| Case Study: |

## Interview Tips

Over my many years of being heavily involved with student government and working as a telephone surveyor, I’m gained a lot of knowledge about conducting surveys with people. For most people, the first few times they conduct a customer interviews, it can be very .

## Customer Interviews

Customer interviews and peer review are a powerful engineering tools and are critical to startups success. Sometimes you don’t want to hear what the customer has to say, but you need to listen.

## Pen and Paper Interview Forms

## Peer Review

It’s important that all of the work that you do be reviewed at least once in a group session. You can’t expect to just email an engineer your work and expect them to email you back useful information. It’s just too hard to type enough information to be useful. Important issues get overlooked. It’s also important to verbally discus problems with designs and documents (Insert information about how talking about things makes a more accurate result).

## Online Surveys

## Customer Interviews

Customer interviews are important in developing superior products.

### Make a List

Make a list of who you think your customers might be.

### Brainstorm questions.

Pick the top 10 most important questions.

Rate the questions on a scale of one to three and combine relevant questions. Only take the ones.

### Good types of questions

* How much money does this usually cost you?
* Am I barking up the wrong tree?  
  Am I wasting my time?
* Would this save you money?

### Stuff to have for interviews.

* Pen and paper.
* A speaker phone.
* Another person with you to take notes so you don’t have to record it.

### Tips:

Don’t pigeonhole yourself into only talking about your product, but instead collect data about their use and needs.

You need to do many interviews so plan on each interview

## Phone Interviews

The idea of this section is that we want to write a document to give to someone so that they can do our phone survey for us.

### Mandatory Finish Ups

Thank them for their time.

“Is there anyone else I should be talking to about this?”

“Is there anything else that you think we should know?”

Don’t close the door, leave it open for them to surprise you.

## Video Game Company Phone Interview

This was with EA Partners

A startup company is developing a product that measure user’s physiological responses to video games to determine when their peak experiences.

At what point in the game development process will this be more valuable

Is there anything else you thing should I know.

What are current game systems?

What is your wish list for data?

At what point in the game would be a better pivot point after getting biometric data.

### Notes:

Their testing company is “Game Lab”.

They primarily do *usability testing* and their typical metric is *telemetry data* that tells where they get hung up on games or move too quickly.

Eye tracking.

Also see how board they are.

Would not send code out to individual developers.

Would work better with smaller developers.

Is there some sort of physical/emotion metric that can be .

San Diego based company Edar does most of the game test.

# Market Validation

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| Case Study: |

## Size of the Market

# Pivots and Iteration Cycles

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| Case Study: |

## Knowing When to Pivot

# Business Models Canvases and Proposals

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| Case Study: |

I pre-lean startup days, the approach to gain legitimacy for your business plan was to write large monolithic business proposals. This practice has in recent years lost favor to the more sophisticated approaches of the elevator pitches, investor slide decks, and lean websites. While it might be an outdated tool for attracting investors, it is still an invaluable tool for the entrepreneur.

The most valuable thing about a business plan is in the early stages of your startup conceptualization. Writing a business plan forces you to address each aspect of the business and write out in detail exactly what you are going to do. For a layman entrepreneur, this can be an easy way to address the critical operational aspects of the business. A business helps you take your goals from abstract to specific

One of the biggest problems with business plans is that they constantly change, and become out of date. They are also very large, so they are hard to maintain.

## Essential Elements of a Business Plan

A business plan is composed of nine primary sections. Each section can be as little as a paragraph, or up to several pages depending on complexity. Its good that you write at least one paragraph about each of these topics before you even think about potentially bankrupting yourself of some stupid startup.

### Mission Statement and Company Vision

Mission statement and/or vision statement so you articulate what you’re trying to create;

### Description of Product(s) and Service(s)

### Product Differentiation and Value Proposition

### Market analysis

That discusses the market you’re trying to enter, competitors, where you fit, and what type of market share you believe you can secure;

### Management Team

Description of your management team, including the experience of key team members and previous successes;

### Marketing Plan

This is outlines how you think that you are going to be able to sell your product.

### Company Strengths and Weaknesses

“Analysis of your company’s strengths, weaknesses, opportunities, and threat, which will show that you’re realistic and have considered opportunities and challenges;” Quote Frobes

### Cash Flow Statement

Develop a cash flow statement so you understand what your needs are now and will be in the future (a cash flow statement also can help you consider how cash flow could impact growth);

### Revenue Projections

Summary/conclusion that wraps everything together (this also could be an executive summary at the beginning of the plan).

## The Business Model Canvas

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| Case Study: |

# Operational Plan

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| Case Study: |

# Economic Modeling

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| Case Study: |

## Price Estimations

## Incorporating Taxes

# Market Defense Strategy

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| Case Study: Story of a startup that went under because they didn’t play for defending their market. |

## Identifying Hazards

## Mitigating Hazards

# Growth Strategy

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| Case Study: Story of a startup that went under because they didn’t play for defending their market. |

# Exit Strategy

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| Case Study: |

# Business Presentations

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| Case Study: |

# The Fine Art of the Pitch

This section is all about how to write documentation for pitch competitions. The idea of this section is that if you are going to a pitch competition, it is extremely important to know exactly how the judges are going to judge you.

Most entrepreneurs will tell you that at first, their pitches totally sucked. I will be the first to admit that my pitching skills when I first got into the entrepreneur cult were pretty bad. I was so lost in the weeds of my project, that I couldn’t describe the high-level idea. This caused people to get confused and totally not

## Its 2/3 Crescendo

The climax of every story is two thirds the way through the story.

## The X Word Pitch

Force your pitch into 10 words, the more up to 20 words, then out to 50, then 100…

[@todo Setup study to set good number targets. What are good tare gets and how do we measure them?]

## Video Tape Yourself

You should always try to pitch your product to yourself before you pitch it to a crowd. If you can’t pitch it to yourself, than how can you expect someone else to buy it? Just about everybody has a webcam these days and the software is easy enough to use that there is never an excuse to not.

Watch video tape with friends, and have them judge you.

## Pitch Competitions

The first step before getting your ego slaughtered by investors is to go to go to as many pitch competition.

### Judging Criteria

## Pitching to Investors

## Pitching to Angel Investors

# Technical Editing

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| Case Study: |

This the point where the student has made it through the first round of the startup succeeding and they now need to go through and edit all of their documents and do some housekeeping.

# Testing Documentation

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| Case Study: |

# Manufacturing Documentation

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| Case Study: |

# Review Documentation

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| Case Study: |

# Deployment Documentation

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| Case Study: |

# Repair Documentation

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| Case Study: |

So what exactly is going to happen when your product breaks?

# Covering Your Legal Bases

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| Case Study: |

# Appendix

# Index

# Bibliography

Forbes Magazine – 10 Essential Business Plan Components. (oneline - <http://www.forbes.com/sites/patrickhull/2013/02/21/10-essential-business-plan-components/> Accessed 4/24/2014)

Don’t space me out man! Keep me up to date as you go!

# Ideas

Section on how to get your files ready for a price quote.

Error log : How do you plan to report errors.