A Crash Course on Product Design

Hi,

I am Aparna a big start up enthusiast from India. I signed up for a Product Design course by Udacity because I have been fiddling with a couple of ideas and I wasn't getting anywhere close to choosing one. This course provided me great inputs to take my ideas in the right direction. It is structured well and brings in the expertise of many people such as Nir Eyal— author of " *Hooked: How to Build Habit-Forming Products"*, Aaron Harris—Partner, Y-Combinator, Kaushik from Locket, Pete Kooman from Optimizely, many user design and experience experts from Google such as Richar Fulcher, Jen (Kozenski) Devins, Amir Shevat and many more.

I took the course over three weeks devouring through the materials and videos. It takes at least about 10–12 hours per week to understand the concepts and to practice them.

My biggest takeaways from the course are **how to conduct user research**, **metrics that matter** and **how to conduct design sprint**.

The course consist of four modules:

1. Ideation and validation
2. UX and UI
3. Design Sprint
4. Metrics

After the end of the course, I realized that if the Design Sprint module was before UX and UI, it would've been better. Therefore you will find my notes in this order.

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Allow me to take you through a Crash course on Product Design..

Ideation and Validation

Step 1: Idea Generation

You see novel ideas everywhere and there are a plenty of inspiration for new ideas around us. You often make a mental note of several such ideas. But when you sit down to write ideas in detail, the ideas become a little murky. Coming up with an idea that your sparks your interest and passion is not easy. Therefore the first step to great product design is to generate a lot of ideas.

Idea Types

The course introduces you to different types of ideas. There is a good chance that you might have come across them while reading books or articles. For you reference, here are the types of ideas:

- **Simplify**—Layout by Instagram—It simplifies combining photos.
- **Me too**—Flipkart—It is an e-commerce platform just like Amazon but in a different market—India.
- **Remix**—Slack—It combines chat, email, messaging in to one team communication tool.
- **Virtualize**—Lyft—Cab services virtualized.
- **Mission Impossible**—Project Loon by Google—Aims to provide connectivity to the world by sending baloons to remote areas.

To do: *Idea Gym*: Using the above types of ideas evaluate the existing ideas and then create some more. This makes up for a very good warming up for the next task.

Look at Problems

A good way to start thinking about ideas is to look at problems.

- List the problems in your life/work
- List out possible ideas to address the problems. (You are allowed to go crazy here)

The reason to start with the problems in your life is that you become an user to the product and it becomes a lot easier to understand the user needs. This is very well explained by Paul Graham from Y-Combinator.

Excerpt from Paul Graham's Essay—Start Up Ideas

Look at What's Bugging You

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I made it myself. In 1995 I started a company to put art galleries online. But galleries didn't want to be online. It's not how the art business works. So why did I spend 6 months working on this stupid idea? Because I didn't pay attention to users. I invented a model of the world that didn't correspond to reality, and worked from that. I didn't notice my model was wrong until I tried to convince users to pay for what we'd built. Even then I took embarrassingly long to catch on. I was attached to my model of the world, and I'd spent a lot of time on the software. They had to want it!

The danger of an idea like this (pet social network) is that when you run it by your friends with pets, they don't say "I would never use this." They say "Yeah, maybe I could see using something like that." Even when the startup launches, it will sound plausible to a lot of people. They don't want to use it themselves, at least not right now, but they could imagine other people wanting it. Sum that reaction across the entire population, and you have zero users.

When you have an idea for a startup, ask yourself: who wants this right now? Who wants this so much that they'll use it even when it's a crappy version one made by a two-person startup they've never heard of? If you can't answer that, the idea is probably bad

Noticing

When you find the right sort of problem, you should probably be able to describe it as obvious, at least to you. When we started Viaweb, all the online stores were built by hand, by web designers making individual HTML pages. It was obvious to us as programmers that these sites would have to be generated by software.

Another way to start looking at problems is to think about big problems in the world. Y-Combinator has put out a great list of big problems which is available [here](#). Use them, if you are finding it hard to list out the problems you have.

Big ideas generally

- Solve a Novel Problem—Google Search
- Extend an current solution—Coursera, Udacity (similar to idea types)
- Disrupt an Industry—Uber

Questioning the Problem-solution the Idea:

Do startups only solve problems? Facebook doesn't solve any problem, neither does twitter, then how are they successful?

Facebook didn't not start out solve a problem. As Nir Eyal puts it, Facebook started out as a Vitamin - nice to haves. But then again, can you do without with?

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How often do you feel the need to update your Instagram? How long do you look at Facebooks news feed?

In Nir Eyal's words,

Pleasure Seeking (vitamins) over time becomes Pain Relieving (pain killers) by creating habits.

So yes, you still can go ahead create the next social network for pets, but make sure you are able to form habit around the product that would prompt users to keep coming back to your network.

Step 2: Evaluate idea or Research

Once you have a couple of ideas on your list, you should start researching on:

1. Similar product ideas
2. Market demand

You can use [Similarweb](#), [whois.net](#) to find out similar ideas and details about existing players.

A good place to look for the market demand online is to use Google tools such as Google Trends, Keyword Planner, AdWords.

Step 3: Validate an idea.

You can talk to people, but the best way is to put out the minimum viable product (use deadlinks if need be) and let users interact with it.

Step 4: Value proposition

Value propositions serve to inform a customer what problem are being addressed and how the product is a solution to that problem.

It is quite common for value propositions to specifically define a pain point present in the customer's life. Essentially, the Value propsition could look like this.

- **For (target customers)**
- **Who are dissatisfied with (the current alternative)**
- **Our product is a (new product)**
- **That provides (key problem-solving capability)**
- **Unlike (the product alternative)**

Example provided in the course:

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Grocery shopping is often a time consuming and frustrating chore. With the Super Duper Shopping App on your phone you can find a store near you, pick out your groceries, and have them ready for pickup or delivery to your door.

To know more about value proposition, you can refer this deck.

UX and UI

I am going to be honest here. This portion of the course was a lot about user experience design and of course it had a lot to do with "UX design". This is probably the first time I am learning about the topic. So, I do not feel comfortable about putting out the notes. However, I will leave a list of topics that was covered so that you could just google them. (If you are a UX designer, you may skip this part)

- Interaction Design - Basically talks about all the tasks that the user would perform on your application or product. Then you dive in and describe the sequence of tasks the user performs.
- Design Flow - From interaction design you know what tasks that user is going to perform, so how do you make it easier? That is, begin with the sketch board and start creating connections between the tasks.
- Material Design - About continuity of usage across devices and bringing the element of motion to provide a intuitive direction to the user (read: after effects).
- Accessibility Design - How to make your product accessible to say users who are color blind or users who prefer high contrast screens? I would've never thought about this before. But given the google's customer base, such issues become quite important to solve.

Apart from this it had pointers to:

- Home Page Design
- Mobile Design
- Payment Forms Design
- Forms Design
- Notifications Design

Design Sprint

Design sprint was developed and popularized by Google Ventures (now GV) to provide a quick idea to launch cycle. According to the website:

The sprint is a five-day process for answering critical business questions through design, prototyping, and testing ideas with customers. Developed at GV, it's a "greatest hits" of business strategy, innovation, behavior science, design thinking, and more—packaged into a battle-tested process that any team can use.

The sprint gives you a superpower: You can fast-forward into the future to see your finished product and customer reactions, before making any expensive commitments.

Essentially, Design Sprint Consist of 6 stages:
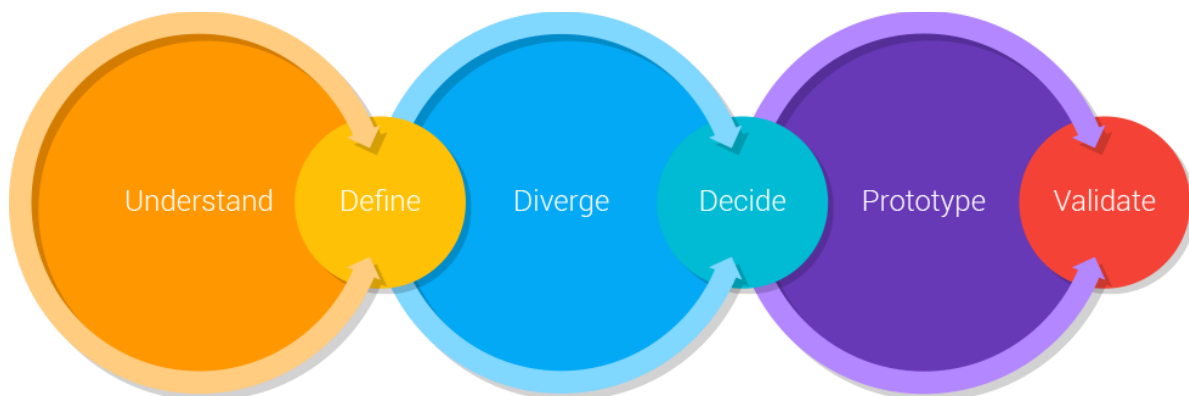
Source: Google Ventures

The best introduction to design sprint is available in the deck below.

http://www.slideshare.net/br2msi/google-design-sprint

I found the material in Google Ventures library very comprehensive. In a series of 6 posts, the author Jake Knapp describes design sprint along with various methods for every stage. I recommend you to read them.

Metrics

Metrics is one thing that is so easy to overlook. But in fact this is probably the single most important thing that has the potential to jet-pack or bomb a start up.

This reminds me of Silicon Valley episode in which Jared buys signups from India for their video compression application in order to keep the investors interest. Sure, the investors were delighted by the numbers (and then Richard of course breaks it to them that the sign ups were bought) but the real problem they faced was user retention. The app was simply too complicated for people to use it.
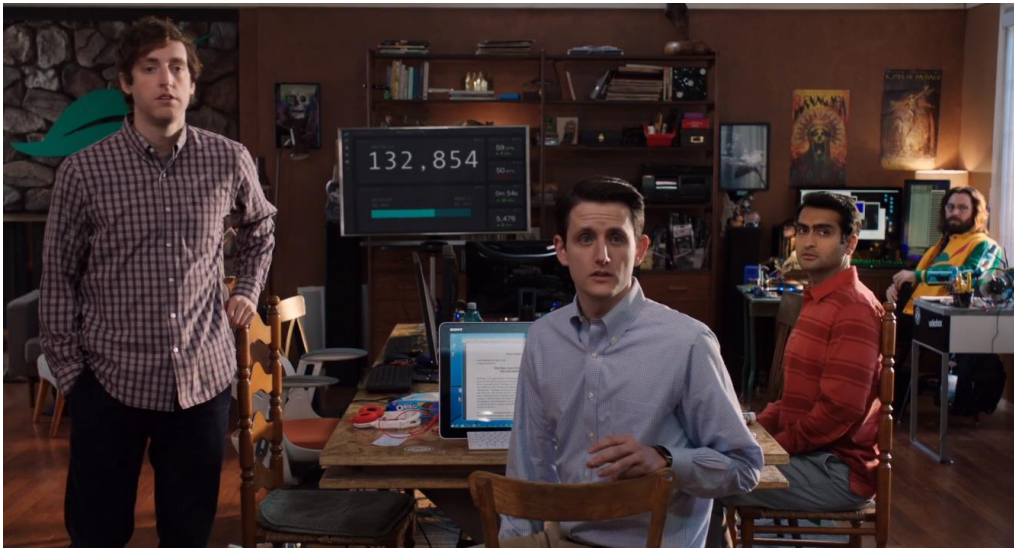
Source: Cyfe

Therefore having the right metric is quite important. Otherwise you may end up solving unnecessary issues and wasting the little resources you have as a startup.

Said that, a metric to a start up is as unique as the idea itself. So you are at your liberty to choose the metric that reflects your success. Here are some of the metrics that you can use:

Net Promoters Score (NPS)

According to Wikipedia, **NPS** is a management tool that can be used to gauge the loyalty of a firm's customer relationships. NPS can be as low as −100 (everybody is a detractor) or as high as +100 (everybody is a promoter). An NPS that is positive (i.e., higher than zero) is felt to be good, and an NPS of +50 is excellent.

The Net Promoter Score, itself, is calculated based on responses to a single question: ***How likely is it that you would recommend our company/product/service to a friend or colleague?*** The scoring for this answer is most often based on a 0 to 10 scale.
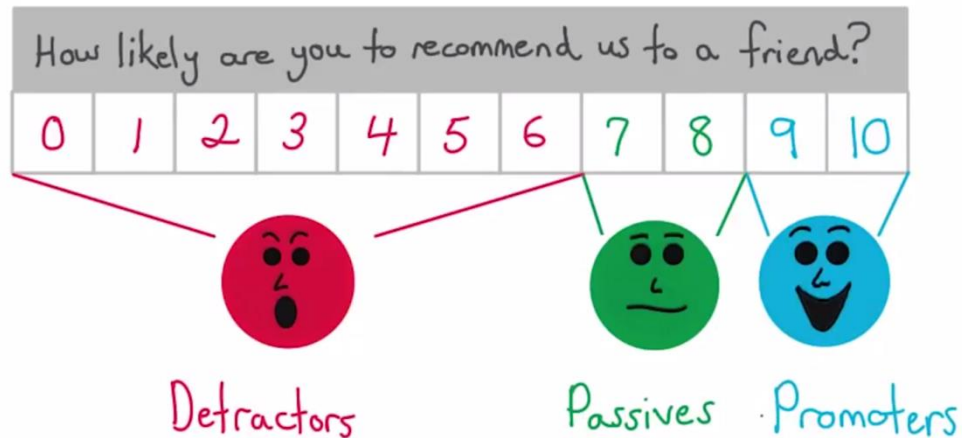
Source: Udacity

Retention Rate

As the name suggests, it is a measure of number of customers who continue to use your product or service. This is also known as *churn* or *attrition* rate. A simple way of calculating retention rate is:

$$\frac{(Customers\ at\ end\ of\ day\ x - New\ Customers\ on\ day\ x)}{Customers\ at\ beginning\ of\ day\ x}$$

Source: Newnorth

However, Abhay Vardhan takes a different route of not only calculating the retention rate, but measuring it as a function of habit by using cohort analysis i.e. study users as a group. He provides an interesting argument as to why this should be used. It's a little statistical (read: graphs) and therefore I haven't included it here. Hey, if you right brain itches to know more, head over to the blog.

HEART Framework

This one comes in handy when you are particular about UX.

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[Kerry Rodden](), UX Reasercher at Google explains the HEART Frame work as follows:

- **Happiness**: *measures of user attitudes, often collected via survey. For example: satisfaction, perceived ease of use, and net-promoter score.*
- **Engagement**: *level of user involvement, typically measured via behavioral proxies such as frequency, intensity, or depth of interaction over some time period. Examples might include the number of visits per user per week or the number of photos uploaded per user per day.*
- **Adoption**: *new users of a product or feature. For example: the number of accounts created in the last seven days or [the percentage of Gmail users who use labels]().*
- **Retention**: *the rate at which existing users are returning. For example: how many of the active users from a given time period are still present in some later time period? You may be more interested in failure to retain, commonly known as "churn."*
- **Task success**: *this includes traditional behavioral metrics of user experience, such as efficiency (e.g. time to complete a task), effectiveness (e.g. percent of tasks completed), and error rate. This category is most applicable to areas of your product that are very task-focused, such as search or an upload flow.*

These can be applied at a number of levels—from the whole product to a specific feature. For example, in Gmail we might be interested in adoption of the product in general, but also in adoption of key features like labels or archiving.

Source: [Dtelepathy]()

Other Metrics

Of course, there are many other metrics that you can use. It could be as simple as Click Through Rates, Average Daily User (ADU), Average Weekly User(AWU), Daily Active Users (DAU), Monthly Active Users (MAU), Installations, Sessions Per User, Session Duration, etc. Based on the type of product you build, choose the metric that measures your progress.

According to [Josh Elman](#), the only metric that really matters is

How many people are really using the product?

He goes on to explain that,

You need a metric that specifically answers this. It can be "x people did 3 searches in the past week". Or "y people visited my site 9 times in the past month". Or "z people made at least one purchase in the last 90 days." But whatever it is, it should be a signal that they are using their product in the way you expected and that they use it enough so that you believe they will come back to use it more and more.

Well, I cannot agree more! The ultimate test for a product is do customers use it?

Once you have chosen the metrics, you need to choose your goal because no matter what you think as a CEO, 'cause numbers don't lie.

Hope you found this post useful. My intention to write this blog post was to share what I learnt with like-minded people. Help spread the word! [Tweet about this post](#)!

Many of the things I shared here are those that requires time to assimilate. So, I welcome you to come again and share your thoughts on the course, or the methods shared. I have already started thinking about a couple of products. I made a list of tools that could be used at various stages of process, hope that helps you get started with your dream startup!

Tools List

Evaluate Idea or Research

- [SimilarWeb](#)
- [whois.net](#)

Market Demand

- [Google Trends](#)
- [Google's Keyword Planner Tool](#)
- [Google AdWords](#)

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User Flows and Low Resolution Wireframes

- [Prezi](#)
- [Wireframe.cc](#)
- [Pencilproject](#)
- [Wireframesketcher](#)
- [Ninjamock](#)

Low Fidelity Prototyping Tools

- [Balsamiq](#)(free trial)
- [Invision](#) (free forever)
- [Keynote](#) (iOS animations)
- [Google Slides](#)

High Fidelity Prototyping Tools

- [Sketch](#)
- [Framer.js](#) (14 day free trial)

Analytic Tools

- [MixPanel](#)
- [AdMob](#)
- [Qualtrics](#)
- [Survey Monkey](#)
- [Google Forms](#)
- [Optimizely](#)

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