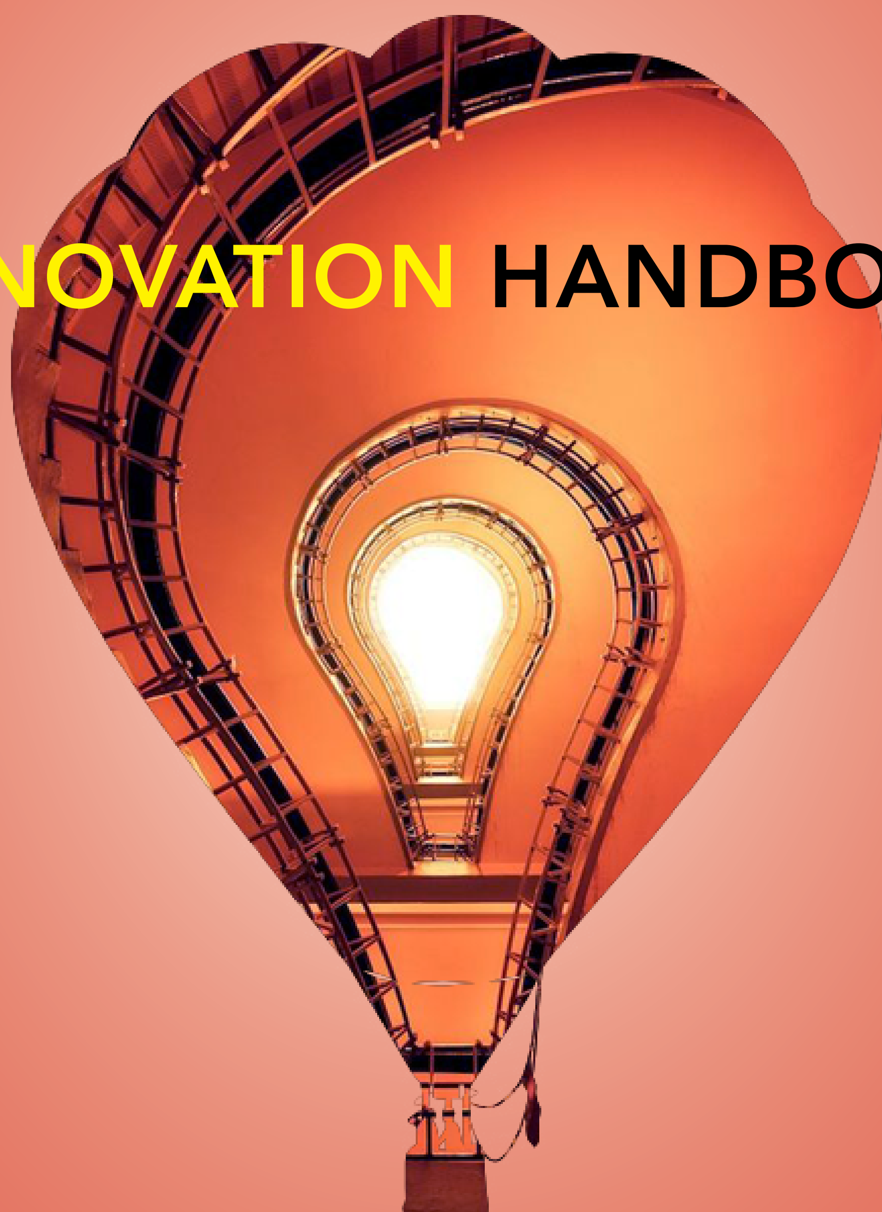
harvard women in computer science

INNOVATION HANDBOOK



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Front cover: Staircase in the inner city of Prague, taken by photographer Dennis Fischer I mymodernmet.com

This booklet is for you, to help you create whatever you want. It's your guide to the often confusing world of entrepreneurship. The world is full of good ideas - it's executing them that's the tough part. Too many ideas die before they're implemented. The time is now.

As soon as we graduate, starting something will only get harder. We have an enormous amount of resources here in the Harvard community; it's just up to us to take advantage of it. We have access to pretty much anything. If you need help prototyping, look no farther than SEAS. If you would like to look at a company's corporate reports, the Baker Library has one of the largest collections in the world - a collection that many companies pay thousands of dollars to access. As Harvard students, our access ends the day we graduate; unless one goes on to HBS. We are always just an email away from the smartest professors and industry leaders.

The point is clear. We should not gamble our time at Harvard; it is but a fleeting opportunity. So you may be asking, where do I start? This handbook will provide a complete guide and also aggregate other articles for further perusal.

SO I HAVE AN IDEA...

How do I know if my idea is good? The thing is you don't at the beginning. Ideas are fragile things at first and come from random places. It could be an observation on how a certain small task could be done better or a comment your friend makes. It is tempting to keep the idea to yourself; refine it until it's perfect and then release it to the world. But to build a product to completion without engaging customers for vital feedback and guidance robs the founder of the varying perspectives that are invaluable in any part of the innovation process, but especially the early stages. Whatever your project, it will benefit from you seeing another person's reaction and hearing their questions and concerns. It is even good practice to have to describe your idea to someone else. Because if you cannot articulate it clearly, then you might have a problem. Ultimately the most important thing is to realize that the creative process is iterative. Very likely the product or service you end up with will be radically different than the one you first conceived.

Read what the CEO of Travify values in the creative process at www.entrepreneur.com/article/227850.

The Save Food from the Fridge project by Jihyun Ryou guardian.co.uk

Streetside scaffolding transformed into urban parklets by Softwalks fastcodesign.com

AN IDEA IS BY NO MEANS A BUSINESS... IT'S EVERYTHING THAT COMES NEXT THAT MAKES A BUSINESS HAPPEN. EXECUTION.

Should I talk to people about my idea without a non disclosure agreement (NDA)?
Realistically, you shouldn't need to make your friends sign one while you're telling them about your venture in the dhall. What makes or breaks a startup is quite frankly the execution. Think about Lyft and Uber, both technically do the same thing; they are ridesharing services, yet the companies have managed to differentiate themselves. Anything that's patentable or unique to your project or venture you can gloss over when you are running a focus group, creating a survey, etc.

How many entrepreneurs' opening words are about how 'stealth' their project is, followed by a 10-page NDA to hear word one? I was totally guilty of this back in the day. For young entrepreneurs, especially non-technical founders like myself, it feels like our 'big idea' is all we have, and we want to guard it like a defenseless baby. We also want to believe that no one else out there in the world has thought of our little gem, and if they were to catch wind, everyone will pounce! Ha! First, whatever your idea is, rest assured it's been thought of before. Secondly, an idea is by no means a business ... it's everything that comes next that makes a business happen. Execution. And no one else will execute the way you do. Third, you're going to need help and guidance from people who know more and have been there before, so you better get comfortable sharing your 'big idea.' — Jeff Jackel, CEO, BuzzMob

WHAT IS A COFOUNDER?

And how do I find one?

Your cofounder is your partner in crime, a person that you trust enough to start a company with. Ideally they should possess skills that you lack, so both of you can complement each other. People tend to start companies with their friends, but you can also find cofounders by looking on the iLab's website.

Read what traits CEOs look for in their cofounders at www.mashable.com/2013/04/08/startup-cofounder-traits/

GETTING A TEAM TOGETHER

The most important factor that determines the successful ventures is the team of people behind it. An HBS study has determined that 65% of startups fail because of personal problems while only 35% fail because of problems with the product. It is far, far better to have an amazing group of people working on a flawed idea than vice versa. Your team should be people that share your core values, yet have different skill sets so when taken together your team is 100% filled out.

THE IMPORTANCE OF YOUR TEAM FROM AN INVESTOR PERSPECTIVE

Investors place a huge premium on human capital, since ultimately it is the people the people make the company. Thus pick your teammates wisely. You want people who share your same values and goals for the company. If you do seek outside investment you'll probably be going to the meeting with a light resume, so the VCs evaluating your the people you are working with. They will be looking to see if you as a founder can inspire talented, intelligent people to join you and believe in your idea.

http://agbeat.com/entrepreneur/top-aha-moments-famous-entrepreneurs/

MAKING YOUR IDEA A REALITY

Prototyping

You have to test out your idea. How you do it depends entirely on the nature of your idea. You may have to build a prototype, give your product to a focus group, conduct surveys etc. Make sure you have a clear idea of who you are building your product or service for. The idea will evolve over time so you it's important to start off simple and do one really small thing well, and then continue building on top of that.

The biggest mistake I see is companies waiting too long to release the product. It's easy to let the scope of what you're building get out of hand. But equally importantly most startups build much more than they truly need to, but this is often only realized in hindsight. Whether your product is working or not, looking back it's easy to see that you only really needed to build a small fraction of the stuff you built. Most features/options/buttons/settings/etc. simply aren't crucial to success or failure, and for an early stage startup that means they were wastes of time — you could have done 10x more with that same amount of time and resources. — Jonathan Wegener, Founder, Timehop and ExitStrategy.

Portable food packaging
TrendHunter.com


A twist on the classic neon sign
fastcodesign.com

KNOW YOUR CUSTOMER

You want to make sure that your venture is attracting the customers you want. Not every customer is the "right" customer for your product. There are numerous examples of companies that have gotten into trouble because the customers they had were not ones made their business model viable. RyanAir almost went bankrupt in the 1980s for this exact reason. Find more about out how they became the world's largest budget airline at www.businessweek.com/stories/2006-11-26/wal-mart-with-wings.

BE FLEXIBLE

Don't give up on your idea just because you find out that someone else is doing it. The Hispanic social network Quepasa was acquired by Facebook for $100 million in cash and stock in 2011. If your venture captures some small part of a larger market there is always the possiblity that a larger company could possibly buy you. Read more about the Quepasa and MyYearbook at www.techcrunch.com/2011/07/20/facebook-for-latinos-quepasa-buys-myyearbook-for-100-million-in-cash-and-stock/.

FUNDING

There are many avenues one can take in regards to funding. There is no right answer since which way to go is entirely dependent on the venture. This section will outline the different types of funding. First, let's figure out why we are talking about funding as something you need to do. This is not a given. The opposite of funding is "bootstrapping," the process of funding a startup through your own savings. There are a few companies that bootstrapped for a while until taking investment, like MailChimp and AirBnB. Every time you get funding, you give up a piece of your company. The more funding you get, the more company you give up. That 'piece of company' is 'equity.' Everyone you give it to becomes a co-owner of your company. The basic idea behind equity is the splitting of a pie. When you start something, your pie is really small. You have a 100% of a really small, bite-size pie. When you take outside investment and your company grows, your pie becomes bigger. Your slice of the bigger pie will be bigger than your initial bite-size pie. When Google went public, Larry and Sergey had about 15% of the pie, each. But that 15% was a small slice of a really big pie.

BOOTSTRAPPING

Bootstrapping is the the process of funding a startup through your own savings or money you raise through crowdfunding platforms like kickstarter.

VENTURE CAPITAL

Venture capital is equity financing provided by institutional investors that either manage a fund on behalf of large institutions or have their own proprietary pool of capital. Venture capital is raised in a series of stages or rounds. Venture capital investors usually specialize in one specific stage.

San Francisco
http://www.wallpaperup.com/45288/San_Francisco_Buildings_Skyscrapers_BW_black_white.html

THE FIVE STAGES OF A COMPANY

START-UP STAGE

Newly formed companies without significant operating histories are considered to be in the start-up stage. Most entrepreneurs fund this stage of a company's development with their own funds as well as investment from angel investors. Angels are wealthy individuals, friends, or family members that personally invest in a company. Angels are the most common source of first round funding for tech business. These investors tend to invest only in local companies or for people that they already know personally.

SEED OR EARLY STAGE

Seed or early stage rounds often involve investments of less than $5 million for companies that have promising concepts validated by key customers but have not yet achieved cash flow or break even. Organized groups of angel investors as well as early stage VC funds usually provide these types of investments. Typically, seed and early VC funds will not invest in companies outside their geographic are as they often work with management on a operational issues.

GROWTH STAGE

Growth stage investments focus on companies that have a proven business model and either are already profitable or offer a clear path to sustainable profitability. These investments ted to be in the $5-20 million range and are intended to help the company increase market penetration significantly.

LATE STAGE

Late stage VC investments tends to be for relatively mature, profitable companies seeking to raise $10+ million for significant strategic initiatives that will create major advantages over their competition.

BUYOUTS AND RECAPITAL-IZATIONS

Buyouts and recapitalizations are becoming more prevalent for mature technology companies that are stable and profitable. In these transactions, existing shareholders sell some or all of the their shares to a VC firm in return for cash.

ARE THERE RISKS WITH RAISING MONEY FROM FRIENDS AND FAMILY?

So while it may be easier in the beginning to raise money from people you know, this strategy comes with risks. Unlike the other options, these loans are based on emotion rather than qualitative and quantitative analysis. In the industry, this kind of fundraising is often called "dumb money". However, some of the largest and most successful Fortune 500 companies today began with "dumb money".

WHAT IS MY EXIT STRATEGY?

When you receive money from investors you start hearing the term "exit strategy" which essentially is their way of asking how are they going to get their money out of the venture. Again as with financing there are many options such as getting acquired by a larger company (for example Starbucks acquiring Teavana) or an initial public offering (IPO).

WHAT IS THE iLAB?

The Harvard iLab is possibly the greatest resource on campus for students interested in innovation and entrepreneurship. It accepts any student from any Harvard school with any idea, fostering cross-disciplinary, cross-university collaboration. The iLab resources support student ventures spanning social and cultural entrepreneurship, health and sciences, technology, and consumer fields. Additionally they frequently have more informal open events that are really informative and fun.

HOW DO I FIND A MENTOR?

A good mentor is talented and successful individual who probably already has significant demands on his or her time. Thus once you've identified someone, approach your potential mentor and the initial meeting as you would an interview. Be prepared to explain what you hope to learn from the individual and why you value his or her insights and expertise, as well as what you bring to the table. Don't take this phase lightly — you're laying the groundwork for a relationship that will hopefully last a lifetime. Additionally it might help to tell your mentor that he or she is only committing to a 30 minute meeting two or three times a semester so the commitment on part of the mentor does not seem so daunting.

I WANT VC FUNDING. WHERE DO I GO?

There are many options, but two firms really stand out. Rough Draft Ventures and the Experiment Fund. Both are located in Cambridge and specialize in mentoring and investing in student-run startups. www.inc.com/eric-markowitz/harvards-go-to-venture-capital-firm.html | www.xfund.com | www.roughdraft.vc

For a more detailed guide to Venture Capital go to www.madisonparkgrp.com/pdf/gtvc.pdf.
For a less detailed guide to Venture Capital go to www.entrepreneur.com/article/42336.

The hubless Sada Bike folds to the size of an umbrella.
dzinetrip.com

other cool things in the innovation world

ACCELERATORS AND INCUBATORS: WHAT'S THE DIFFERENCE?

An accelerator takes single-digit chunks of equity in externally developed ideas in return for small amounts of capital and mentorship. They're generally truncated into a three to four month program at the end of which the start-ups "graduate". An incubator, on the other hand, brings in an external management team to manage an idea that was developed internally. Those ideas can gestate for much longer periods of time and the incubator takes a much larger amount of equity compared to accelerators.

FELLOWSHIPS

for student entrepreneurs

20 thiel fellowship

The Thiel Fellowship (originally named 20 under 20) is a fellowship created by Peter Thiel (founder of Paypal) through the Thiel Foundation. The fellowship is intended for students under the age of 20 and offers them a total of $100,000 over two years as well as guidance and other resources to drop out of school and pursue other work, which could involve scientific research, creating a startup, or working on a social movement. Selection for the fellowship is through a competitive annual process, with about 20-25 fellows selected annually.
http://www.thielfellowship.org/

PENN APPS

PennApps Fellows is a student-run organization that pairs talented students from around the country with startups in Philadelphia for a 10-week summer internship. If accepted into the program, you will work closely with a local Philly startup and partake in many of our program's features.
http://fellows.pennapps.com/

True Entrepreneur Corps (TEC) program has been bringing undergraduates from across the country to the San Francisco Bay area to spend the summer with our portfolio companies and learn firsthand what it's like to work at a startup. For students interested in technology and startups, becoming a TEC Fellow can truly be a life changing experience.
http://www.trueventures.com/tec/