The Future of Web Startups

paulgraham.com · Paul Graham · 2007-10 · source

|

October 2007
(This essay is derived from a keynote at FOWA in October 2007.)

There's something interesting happening right now. Startups are undergoing the same transformation that technology does when it becomes cheaper.

It's a pattern we see over and over in technology. Initially there's some device that's very expensive and made in small quantities. Then someone discovers how to make them cheaply; many more get built; and as a result they can be used in new ways.

Computers are a familiar example. When I was a kid, computers were big, expensive machines built one at a time. Now they're a commodity. Now we can stick computers in everything.

This pattern is very old. Most of the turning points in economic history are instances of it. It happened to steel in the 1850s, and to power in the 1780s. It happened to cloth manufacture in the thirteenth century, generating the wealth that later brought about the Renaissance. Agriculture itself was an instance of this pattern.

Now as well as being produced by startups, this pattern is happening to startups. It's so cheap to start web startups that orders of magnitudes more will be started. If the pattern holds true, that should cause dramatic changes.

1. Lots of Startups

So my first prediction about the future of web startups is pretty straightforward: there will be a lot of them. When starting a startup was expensive, you had to get the permission of investors to do it. Now the only threshold is courage.

Even that threshold is getting lower, as people watch others take the plunge and survive. In the last batch of startups we funded, we had several founders who said they'd thought of applying before, but weren't sure and got jobs instead. It was only after hearing reports of friends who'd done it that they decided to try it themselves.

Starting a startup is hard, but having a 9 to 5 job is hard too, and in some ways a worse kind of hard. In a startup you have lots of worries, but you don't have that feeling that your life is flying by like you do in a big company. Plus in a startup you could make much more money.

As word spreads that startups work, the number may grow to a point that would now seem surprising.

We now think of it as normal to have a job at a company, but this is the thinnest of historical veneers. Just two or three lifetimes ago, most people in what are now called industrialized countries lived by farming. So while it may seem surprising to propose that large numbers of people will change the way they make a living, it would be more surprising if they didn't.

2. Standardization

When technology makes something dramatically cheaper, standardization always follows. When you make things in large volumes you tend to standardize everything that doesn't need to change.

At Y Combinator we still only have four people, so we try to standardize everything. We could hire employees, but we want to be forced to figure out how to scale investing.

We often tell startups to release a minimal version one quickly, then let the needs of the users determine what to do next. In essense, let the market design the product. We've done the same thing ourselves. We think of the techniques we're developing for dealing with large numbers of startups as like software. Sometimes it literally is software, like Hacker News and our application system.

One of the most important things we've been working on standardizing are investment terms. Till now investment terms have been individually negotiated. This is a problem for founders, because it makes raising money take longer and cost more in legal fees. So as well as using the same paperwork for every deal we do, we've commissioned generic angel paperwork that all the startups we fund can use for future rounds.

Some investors will still want to cook up their own deal terms. Series A rounds, where you raise a million dollars or more, will be custom deals for the forseeable future. But I think angel rounds will start to be done mostly with standardized agreements. An angel who wants to insert a bunch of complicated terms into the agreement is probably not one you want anyway.

3. New Attitude to Acquisition

Another thing I see starting to get standardized is acquisitions. As the volume of startups increases, big companies will start to develop standardized procedures that make acquisitions little more work than hiring someone.

Google is the leader here, as in so many areas of technology. They buy a lot of startups— more than most people realize, because they only announce a fraction of them. And being Google, they're figuring out how to do it efficiently.

One problem they've solved is how to think about acquisitions. For most companies, acquisitions still carry some stigma of inadequacy. Companies do them because they have to, but there's usually some feeling they shouldn't have to—that their own programmers should be able to build everything they need.

Google's example should cure the rest of the world of this idea. Google has by far the best programmers of any public technology company. If they don't have a problem doing acquisitions, the others should have even less problem. However many Google does, Microsoft should do ten times as many.

One reason Google doesn't have a problem with acquisitions is that they know first-hand the quality of the people they can get that way. Larry and Sergey only started Google after making the rounds of the search engines trying to sell their idea and finding no takers. They've been the guys coming in to visit the big company, so they know who might be sitting across that conference table from them.

4. Riskier Strategies are Possible

Risk is always proportionate to reward. The way to get really big returns is to do things that seem crazy, like starting a new search engine in 1998, or turning down a billion dollar acquisition offer.

This has traditionally been a problem in venture funding. Founders and investors have different attitudes to risk. Knowing that risk is on average proportionate to reward, investors like risky strategies, while founders, who don't have a big enough sample size to care what's true on average, tend to be more conservative.

If startups are easy to start, this conflict goes away, because founders can start them younger, when it's rational to take more risk, and can start more startups total in their careers. When founders can do lots of startups, they can start to look at the world in the same portfolio-optimizing way as investors. And that means the overall amount of wealth created can be greater, because strategies can be riskier.

5. Younger, Nerdier Founders

If startups become a cheap commodity, more people will be able to have them, just as more people could have computers once microprocessors made them cheap. And in particular, younger and more technical founders will be able to start startups than could before.

Back when it cost a lot to start a startup, you had to convince investors to let you do it. And that required very different skills from actually doing the startup. If investors were perfect judges, the two would require exactly the same skills. But unfortunately most investors are terrible judges. I know because I see behind the scenes what an enormous amount of work it takes to raise money, and the amount of selling required in an industry is always inversely proportional to the judgement of the buyers.

Fortunately, if startups get cheaper to start, there's another way to convince investors. Instead of going to venture capitalists with a business plan and trying to convince them to fund it, you can get a product launched on a few tens of thousands of dollars of seed money from us or your uncle, and approach them with a working company instead of a plan for one. Then instead of having to seem smooth and confident, you can just point them to Alexa.

This way of convincing investors is better suited to hackers, who often went into technology in part because they felt uncomfortable with the amount of fakeness required in other fields.

6. Startup Hubs Will Persist

It might seem that if startups get cheap to start, it will mean the end of startup hubs like Silicon Valley. If all you need to start a startup is rent money, you should be able to do it anywhere.

This is kind of true and kind of false. It's true that you can now start a startup anywhere. But you have to do more with a startup than just start it. You have to make it succeed. And that is more likely to happen in a startup hub.

I've thought a lot about this question, and it seems to me the increasing cheapness of web startups will if anything increase the importance of startup hubs. The value of startup hubs, like centers for any kind of business, lies in something very old-fashioned: face to face meetings. No technology in the immediate future will replace walking down University Ave and running into a friend who tells you how to fix a bug that's been bothering you all weekend, or visiting a friend's startup down the street and ending up in a conversation with one of their investors.

The question of whether to be in a startup hub is like the question of whether to take outside investment. The question is not whether you need it, but whether it brings any advantage at all. Because anything that brings an advantage will give your competitors an advantage over you if they do it and you don't. So if you hear someone saying "we don't need to be in Silicon Valley," that use of the word "need" is a sign they're not even thinking about the question right.

And while startup hubs are as powerful magnets as ever, the increasing cheapness of starting a startup means the particles they're attracting are getting lighter. A startup now can be just a pair of 22 year old guys. A company like that can move much more easily than one with 10 people, half of whom have kids.

We know because we make people move for Y Combinator, and it doesn't seem to be a problem. The advantage of being able to work together face to face for three months outweighs the inconvenience of moving. Ask anyone who's done it.

The mobility of seed-stage startups means that seed funding is a national business. One of the most common emails we get is from people asking if we can help them set up a local clone of Y Combinator. But this just wouldn't work. Seed funding isn't regional, just as big research universities aren't.

Is seed funding not merely national, but international? Interesting question. There are signs it may be. We've had an ongoing stream of founders from outside the US, and they tend to do particularly well, because they're all people who were so determined to succeed that they were willing to move to another country to do it.

The more mobile startups get, the harder it would be to start new silicon valleys. If startups are mobile, the best local talent will go to the real Silicon Valley, and all they'll get at the local one will be the people who didn't have the energy to move.

This is not a nationalistic idea, incidentally. It's cities that compete, not countries. Atlanta is just as hosed as Munich.

7. Better Judgement Needed

If the number of startups increases dramatically, then the people whose job is to judge them are going to have to get better at it. I'm thinking particularly of investors and acquirers. We now get on the order of 1000 applications a year. What are we going to do if we get 10,000?

That's actually an alarming idea. But we'll figure out some kind of answer. We'll have to. It will probably involve writing some software, but fortunately we can do that.

Acquirers will also have to get better at picking winners. They generally do better than investors, because they pick later, when there's more performance to measure. But even at the most advanced acquirers, identifying companies to buy is extremely ad hoc, and completing the acquisition often involves a great deal of unneccessary friction.

I think acquirers may eventually have chief acquisition officers who will both identify good acquisitions and make the deals happen. At the moment those two functions are separate. Promising new startups are often discovered by developers. If someone powerful enough wants to buy them, the deal is handed over to corp dev guys to negotiate. It would be better if both were combined in one group, headed by someone with a technical background and some vision of what they wanted to accomplish. Maybe in the future big companies will have both a VP of Engineering responsible for technology developed in-house, and a CAO responsible for bringing technology in from outside.

At the moment, there is no one within big companies who gets in trouble when they buy a startup for $200 million that they could have bought earlier for $20 million. There should start to be someone who gets in trouble for that.

8. College Will Change

If the best hackers start their own companies after college instead of getting jobs, that will change what happens in college. Most of these changes will be for the better. I think the experience of college is warped in a bad way by the expectation that afterward you'll be judged by potential employers.

One change will be in the meaning of "after college," which will switch from when one graduates from college to when one leaves it. If you're starting your own company, why do you need a degree? We don't encourage people to start startups during college, but the best founders are certainly capable of it. Some of the most successful companies we've funded were started by undergrads.

I grew up in a time where college degrees seemed really important, so I'm alarmed to be saying things like this, but there's nothing magical about a degree. There's nothing that magically changes after you take that last exam. The importance of degrees is due solely to the administrative needs of large organizations. These can certainly affect your life—it's hard to get into grad school, or to get a work visa in the US, without an undergraduate degree—but tests like this will matter less and less.

As well as mattering less whether students get degrees, it will also start to matter less where they go to college. In a startup you're judged by users, and they don't care where you went to college. So in a world of startups, elite universities will play less of a role as gatekeepers. In the US it's a national scandal how easily children of rich parents game college admissions. But the way this problem ultimately gets solved may not be by reforming the universities but by going around them. We in the technology world are used to that sort of solution: you don't beat the incumbents; you redefine the problem to make them irrelevant.

The greatest value of universities is not the brand name or perhaps even the classes so much as the people you meet. If it becomes common to start a startup after college, students may start trying to maximize this. Instead of focusing on getting internships at companies they want to work for, they may start to focus on working with other students they want as cofounders.

What students do in their classes will change too. Instead of trying to get good grades to impress future employers, students will try to learn things. We're talking about some pretty dramatic changes here.

9. Lots of Competitors

If it gets easier to start a startup, it's easier for competitors too. That doesn't erase the advantage of increased cheapness, however. You're not all playing a zero-sum game. There's not some fixed number of startups that can succeed, regardless of how many are started.

In fact, I don't think there's any limit to the number of startups that could succeed. Startups succeed by creating wealth, which is the satisfaction of people's desires. And people's desires seem to be effectively infinite, at least in the short term.

What the increasing number of startups does mean is that you won't be able to sit on a good idea. Other people have your idea, and they'll be increasingly likely to do something about it.

10. Faster Advances

There's a good side to that, at least for consumers of technology. If people get right to work implementing ideas instead of sitting on them, technology will evolve faster.

Some kinds of innovations happen a company at a time, like the punctuated equilibrium model of evolution. There are some kinds of ideas that are so threatening that it's hard for big companies even to think of them. Look at what a hard time Microsoft is having discovering web apps. They're like a character in a movie that everyone in the audience can see something bad is about to happen to, but who can't see it himself. The big innovations that happen a company at a time will obviously happen faster if the rate of new companies increases.

But in fact there will be a double speed increase. People won't wait as long to act on new ideas, but also those ideas will increasingly be developed within startups rather than big companies. Which means technology will evolve faster per company as well.

Big companies are just not a good place to make things happen fast. I talked recently to a founder whose startup had been acquired by a big company. He was a precise sort of guy, so he'd measured their productivity before and after. He counted lines of code, which can be a dubious measure, but in this case was meaningful because it was the same group of programmers. He found they were one thirteenth as productive after the acquisition.

The company that bought them was not a particularly stupid one. I think what he was measuring was mostly the cost of bigness. I experienced this myself, and his number sounds about right. There's something about big companies that just sucks the energy out of you.

Imagine what all that energy could do if it were put to use. There is an enormous latent capacity in the world's hackers that most people don't even realize is there. That's the main reason we do Y Combinator: to let loose all this energy by making it easy for hackers to start their own startups.

A Series of Tubes

The process of starting startups is currently like the plumbing in an old house. The pipes are narrow and twisty, and there are leaks in every joint. In the future this mess will gradually be replaced by a single, huge pipe. The water will still have to get from A to B, but it will get there faster and without the risk of spraying out through some random leak.

This will change a lot of things for the better. In a big, straight pipe like that, the force of being measured by one's performance will propagate back through the whole system. Performance is always the ultimate test, but there are so many kinks in the plumbing now that most people are insulated from it most of the time. So you end up with a world in which high school students think they need to get good grades to get into elite colleges, and college students think they need to get good grades to impress employers, within which the employees waste most of their time in political battles, and from which consumers have to buy anyway because there are so few choices. Imagine if that sequence became a big, straight pipe. Then the effects of being measured by performance would propagate all the way back to high school, flushing out all the arbitrary stuff people are measured by now. That is the future of web startups.

Thanks to Brian Oberkirch and Simon Willison for inviting me to speak, and the crew at Carson Systems for making everything run smoothly.

|