Hardware Startups Have a Secret Strength

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Hardware is risky. Making something you can touch and feel usually takes more money and time than developing software products.

Yet five out of the last seven startups I recommended to my *First Stage Investor* members are hardware (or hybrid hardware and software) companies. That's because in each of them something significant is offsetting the risks.

The journey these hardware companies take is complicated, expensive and requires founders to have diverse skill sets. It takes longer to develop hardware. And when founders finally have a product or prototype, they have to spend time reiterating on it to make sure it's ready for market. And that process can be expensive, complicated and time consuming too.

But where other investors look at hardware and see problems and potholes, I see defensibility. The harder it is to make a product, the harder it is for someone to compete with it. This is a huge deal. It's why hardware companies are worth investing in. But it often goes unnoticed.

Here's a basic list of all the tasks that go into bringing a hardware product to market... Design the product. Build a prototype. Experiment in-house. Tweak the prototype. Repeat a few more times. Make more prototypes. Send to customers. Selectively incorporate feedback. Build new prototypes. Send to customers again. Finalize the pre-commercial prototype. Build tooling (in-house or via a contract manufacturer). Develop supply chain. Build in redundancy. Lock in the cheap prices. Hire a logistics specialist or contract one. Develop a spreadsheet to manage cost (for goods and components, manufacture ops, shipping, warehousing, last-mile delivery and dozens more categories).

If you're making a consumer product good, then also figure out packaging, labeling, returns and shelf life. And develop software to collect data that will tell you which products to ship to which stores at what amounts.

This is by no means a comprehensive list. I just wanted to give you a general idea of what's involved. Not any one thing is daunting. It's the totality of what goes into manufacturing a product that makes it challenging.

CB Insights analyzed 400 failed hardware startups and found that one of the top two reasons hardware startups fail is a high burn rate. In other words, the journey is very expensive. The other reason is lack of consumer demand. That could mean a lot of things — bad pricing, bad marketing, etc. It could also mean if the hardware startup gets it wrong the first time with customers, there's no do-over.

So hardware isn't easy. But that high level of difficulty also carries an enormous advantage. Because it's so hard to build an innovative hardware product, it's also much harder to build a better one. That's defensibility.

As an investor, you don't have to know all the gritty details about manufacturing. But apart from defensibility, you do need to know if the company has a firm grasp on these three critical areas…

1. **Operations.** I believe the leaner the better. In particular, shortening product development cycles and iterating as rapidly as possible — while getting feedback to achieve product-market fit — is a boon to a hardware company. Also, contracting out as much as possible. Other people may disagree, but in my book, the more that's farmed out — from engineering to manufacturing to logistics to e-commerce — the better chance startups have of doing more while spending less. But as the next rule suggests, finding that balance isn't easy.

2. **Finances.** The challenge is to deploy best-of-class contractors, partners and hires within a responsible budget. Costs can quickly mount by doing too much in-house. But they can also add up by using top-of-the-line third parties that are expensive. The best founders know where to find bargains. They also master the fine art of determining when it's worth spending money and when it makes sense to go with a cheaper alternative.

3. **Scaling.** This is a whole new ballgame. Has the company developed the software and physical infrastructure, expertise, organization and skill to transition from small-batch production and modest marketing and sales to something much bigger? If done right, the company can reap significant economies of scale, fatten margins and unleash revenue growth. But if not done right, it becomes a big and usually unfixable mess.

Scaling is often years down the road and therefore not an issue of immediate concern for some early investors. But it should be. Even at an early stage, hardware companies should develop *scalable* supply chains and fulfillment infrastructures, *mass scale* contract manufacturing and *multi-year* contracts with third-party logistics, warehousing and marketing partners.

The biggest myth about hardware startups is that they have to settle for slim margins. That's too simplistic. It varies from company to company. But it's certainly not a death sentence for those that do bear slender margins. Vizio has thrived as a high volume and low margin manufacturer of large-screen TV's. Last year it raked in more than $2 billion in revenue. Its net income was $102 million — not great but more than sufficient for it to file for an initial public offering this week.

But many hardware companies sport generous margins. I just recommended a hardware company that sold its product for $5,300 or higher. Its cost of goods was $1,000. As it scales, it aims to drive down costs to around $350.

I take the talk of high costs, long runways, extended product iteration cycles with a grain of salt. America has always excelled in manufacturing. And startups are upholding this proud tradition. Their upside can be every bit as enticing as software startups. And because it takes more than a couple of coders on laptops to develop a product, hardware startups provide plenty of defensibility in addition to upside. And that's the recipe for a good investment.