Overcoming the Challenges of Being a Hardware Startup

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March 23, 2016

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In many ways, starting up a new company is easier than ever. Thanks to the Internet, even the smallest of companies can have a global presence. Crowdsourcing platforms can take the funding conundrum out of the equation. In addition, 3D printing enables companies to get prototypes built quickly and at less expense.

Despite all of this good news for entrepreneurs, it's still not an easy endeavor. Taking cues from some hardware startups who have successfully navigated the hurdles, here are some lessons learned from their experiences. While it's not a sure-fire recipe for success, a lot can be learned from these now-seasoned entrepreneurs.

Securing Funding Through Different Sources

Some of the biggest challenges facing any hardware start-up involve locating sources of capital. Many start-ups are initially run through bootstrapping (self-funding), which can get you through the short term, but may leave you with mountains of debt. In some cases, hardware start-ups are formed out of extensions of collegiate projects or research. In these cases, universities can often provide some initial research seed funding to carry the project for a little while. However, good entrepreneurs plan their funding route long before they run out of money.

Funding can come from many sources and will depend on the stage of your company. Many high-tech hardware start-ups look to local colleges and universities for innovation challenges and competitions. In addition, some large tech accelerators run contests with winners at the local level advancing to regional levels and beyond to compete on the national stage.

Many high-tech hardware companies take advantage of government grants. Many states offer grants to fledgling start-ups in an effort to not only help them grow, but to keep their employment in-state. Be aware, however, that applying for government grants is time-consuming and can take up a lot of resources.

Crowdfunding is another source of funding that has become popular over the last few years. Online crowdfunding companies like Kickstarter and Indiegogo offer platforms for companies seeking capital to raise money through donations. In essence, a company can get hundreds or thousands of smaller donations amounting to millions of dollars. At the same time, crowdfunding allows the start-up's founders to maintain a greater share of the company's equity and control. Many companies choose this route early on when they need to prove market demand to angel investors or venture capitalists (VCs).

Another interesting aspect of raising funds in the hardware space is how it is often tied to having a demonstrable prototype. In many cases, especially in high tech, investors want to see how things look, feel, and work before they invest. Entrepreneurs in this space will benefit from building a working prototype as early as possible; otherwise, they risk being unable to secure funding at required times.

What Type of Prototypes Work Best?

The ability to quickly and efficiently design and build a prototype can be a key success factor for many hardware technology start-ups. In many cases, additional capital hinges on the company's ability to have a working prototype as early in the process as possible.

Creating physical prototypes can be expensive. Start-ups trying to conserve cash may need to create multiple versions of the product as they progress through the early stages. Wearables, for example, which incorporate both hardware and software components, require more physical prototypes than other products. Some wearables are considered safety equipment, which must be certified to meet government safety standards.

In many instances, hardware companies can more effectively perform part and system stress-testing through simulation. This enables cost-effective testing prior to parts going to the factory for production, avoiding the problem of finding out later they may not work correctly under load. These mistakes can be costly for any company, but are more magnified for start-ups that do not have extra capital to waste. Many hardware startups use computer-based analysis tools, such as SOLIDWORKS Simulation solutions, to help them cost-effectively test and validate their designs.

Protecting Intellectual Property (IP)

In the hardware world, patents create a sustainable advantage for technology companies.Protecting your original designs and technology not only builds a competitive barrier to entry, but can also put small companies in a position of strength.

IP can come in many forms. At its simplest form, entrepreneurs think about IP as design and technology developments, however, it can also include employees, partners, suppliers, and contractors. Creating and using proper documentation can make a huge difference down the road.

Many startups are also unaware that in the legal world, there is a concept called enabling public disclosure (EPD), which means you have publicly shared enough about your product to allow someone with the same level of knowledge as another in the industry to copy your product. Common examples are exhibiting the product at a trade show or within an article in a publication. One year following an EPD, you cannot patent that product or invention; therefore, it is important to keep your technology out of the public eye until you are confident it is legally protected.

The Bottom Line: It's Not Easy

Starting a hardware company is a daunting task. Entrepreneurs face a lot of hurdles. It can be a lonely journey, fraught with many uncertain times. Understanding how other entrepreneurs have successfully navigated these hurdles can improve your odds of success. Read the white paper, "Navigating the Hurdles of Hardware Startups" to hear their real-life success stories.