



Stanford eCorner

Product Development

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Video URL: <http://ecorner.stanford.edu/videos/863/Product-Development>

After bringing together the best team, raising money in tough environments, and establishing and living by core values, says Worthington, Fluidigm focused on launching the product. The product development went much faster than anyone could have hoped and soon they had a product with many important features, including an immediate economic benefit to the customers, he notes.



Transcript

So here we were in 1999. You combine all these things that I've been talking about. We recruited people at every level of the company that were the very, very best that we could find. We were able to raise money from the venture capitalists during all different kinds of environments. We were disciplined. We made tough choices. We established what our values were and then tried to live by them as best we could. And the results are pretty phenomenal. This is where we are today. And that looks an awful lot like an integrated circuit.

I know because I used to design them. That is one of our chips, and it does protein crystallization. Graphically, this is what our trajectory looks like when we first got our first valve to twiddle and then realized that we might be able to build integrated circuits. I drew this chart, actually, and said, "OK, we can do as well as Moore's Law, then somewhere out in this timeframe we should be building chips that had, give or take, eight valves per square centimeter." And Neil shook his head and said, "Guys, you're insane. That will never happen." Well, something I've never dreamed would happen did. Our trajectory is much, much faster than anybody ever dreamed. The chip that I showed you a moment ago is a thousand times more dense, is a thousand times as many active components on it, Moore's Law would have prevented for us. There are some fundamental reasons why this is so. Partially, we're building off of some amount of infrastructure that is integrated circuit-related that applies to us. A limited amount of IC-manufacturing technology applies to Fluidigm, but it also turns out that microfabricating the soft lithography, basically molding rubber chips, turns out to be a very forgiving manufacturing process, and it's possible to power through levels of density much faster and be a lot less defect-sensitive.

That resulted in our product, which had a couple of really important features to it. We were able to harness the concept of integration, take lots of plumbing and compact it into a very small space, and then there was new physics. Things happened that they never did don't have a microscopic analog. We were able to harness that. And then through miniaturization, and in particular miniaturizing the amount of sample that is required, in this case proteins to do protein crystallization studies, there is an immediate economic benefit. Proteins are very difficult to produce in quantity, and if by reducing the amount required per reaction by a factor of 100, a customer could immediately say, "Wow, I'm going to save money by using your product. And at the same time, I'm going to be able to do experiments that don't exist in the macro world." That combination together turned out to be very powerful for us. We launched the product in March 2003. It was adopted very quickly. I think now we have approaching 60 sites around the world.

We did about \$4 million in revenue our first commercial year. We found that there was a large market for us to expand into

because crystallography is like the... Everybody does it. But it's one of these things that's incredibly manual today or it's done with giant robots. So we chose the right application, at least that's what certainly we believe right now. And this was done primarily by two gentlemen, Mike Lucero, who's our VP of Sales and Marketing, and Lincoln McBride, who's our Chief Technology Officer. I cannot stress enough how important it is to find people who have track records of success and who have combined that with the ability to make decisions and not just say, "Well, here's what I think you should do," but then be able to go out and do it. Mike and Lincoln together both have excellent judgment but also have demonstrated success in the past building very successful life science systems, and having them at Fluidigm resulted in the choosing of this application.