Stanford eCorner

An Emerging Market: Investing in Nanosolar

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In this clip, Erik Straser, a partner at Mohr Davidow Ventures, discusses a case study of his firm's investment in a new solar technology modeled after printing a daily newspaper. Straser speaks in depth about reducing the costs and complexity of the sector, choosing the right entrepreneur, and gauging the level of capital investment required.

Transcript

What are some of the investments you guys have made that you feel particularly excited about? I think the one that's probably farthest along is Nanosolar. One of the reasons I bring that up is it has a lot of Stanford students in it, and it has a lot of Stanford intellectual property in it. The basic premise behind the company - as well as the founder is a Stanford Ph.D. grad. He and Larry and Sergei and I all went to graduate school at about the same time. The premise of the company in solar is just too expensive. And if we found a way to make photovoltaic cells the same way that the nightly newspaper is printed, think about the New York Times and the machine that generates the New York Times everyday by the hundreds of thousands if not millions of copies in one day, how can we bring those printing technologies to the photovoltaic business which to date has been bootstrapped off of the semiconductor business? In semiconductors, you make money by making things increasingly smaller and packing more value into it. In solar, you're trying to create square kilometers of things per minute. And so the collision of those economic forces really was forcing the silicon technologies not to be able to be effective as a photovoltaic technology. So the idea was basically, can we move the economics of photovoltaics to the economics of printing? Today, the company is effectively in production here in south San Jose.

There must be 50 to 75 Stanford people inside the company at this point, and going quite well I might say. It's actually an interesting one to work with. Now you were looking at Nanosolar as a business plan or as a Power Point presentation probably with a small prototype or something like it, how did you evaluate the opportunity given that the solar business is neither high growth today nor is it profitable? How did you evaluate the opportunity? We looked at the opportunity in late 2004. And what you saw, I think you had a couple of observations: One, the photovoltaic market was not a domestic market. The market is driven at that time, and still is today, out of Japan and Germany. So you had to know that in order to find that opportunity interesting at all because you would have walked in and say, come on, this isn't a domestic market. Where are we going to sell this? No one wants it, blah, blah, blah. The second thing, I think, you had to understand is the market was at that time about 2 billion in product sales but on an over 40 % growth rate. So 40 % of 2 billion, that is another billion, and you just kind of keep compounding the 40 % along and you realize, there's lots of products being sold into this business. And as price comes down, the amount grows very inelastically, meaning a small price drop causes a dramatic increase in desired volume.

So we worked on the market thesis and actually had that pretty well cooked before we met the company, so we were actively looking for this. And I think that is one of the thesis areas here in clean tech. The opportunity specifically was, do you want to work with this entrepreneur? And do you think this is the technology and the manufacturing strategy that can get it done? So the manufacturing strategy is around creating a nano-particulate ink; that is where the nano comes from. And using printing technology to create solar cells; that is where the solar comes from. The entrepreneurs are actually a really interesting character. Martin Roscheisen was one of the founders of Trading Dynamics which sold to Ariba very early on and was also one of the founders and CEO of eGroups which sold to Yahoo! and is effectively today Yahoo! Groups. So you had a repeat entrepreneur but the entrepreneur was not experienced in this industry. So the risk was, can this entrepreneur learn a new area. But the entrepreneur had already demonstrated the ability to build great management teams, access capital, do a bunch of the things that are requisite in order to put a startup together. And how did you decide how much to capitalize the business with? It is obviously something that you could scale up pretty rapidly or start small with a seed kind of investment.

How did you guys approach that problem? I think that is one of the challenges here in the clean tech segment. Understanding the amount of capital it takes in managing the businesses in a way so that you put enough money to get the next milestone done and most of the time when we invest in the next milestone's a technical milestone. As opposed to a market milestone or a certain level of sales... Or get the $10 million in sales or get the product released, for example. It really comes down to sitting down with the company going from it's operating clean understanding how many people months and how much innovation is required and how much can we plan on innovation happening on Tuesday versus Wednesday. And really understanding from a bottoms-up, how do you put the company together. I think that is one of the real skills you need to have in our profession. It is the understanding how do you, from the bottoms-up perspective, put capital and people and a plan together to make it work.