EETIMES

Never lose focus

By Patrick Manion
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Eighteen months after its founding, eSilicon Corp. hit rock bottom. The tech bubble had burst, the market had collapsed, venture capital had all but dried up. And then, on the morning top-level management was to meet to discuss the company's next funding round, all bets were off as the drama of Sept. 11, 2001, unfolded.

The confluence of events shook Jack Harding to his core. As eSilicon's founder and chief executive officer, the veteran of two prior startups — Zycad and Cooper & Chyan Technology — thought he had seen it all. But now Harding couldn't help but wonder if eSilicon's model could survive the combination of unforeseen calamities.

"We told everyone to stay home, of course [on 9/11], but we still had to hold the meeting," Harding said. "I believe we were being challenged at that time."

An understatement, but true nonetheless, not only for eSilicon but for countless small startups that teetered on the edge during that period. For all of them, the crisis triggered a deep soul-searching that would unearth the most fundamental of questions, from business model to underlying technology and, eventually, to the very reason for their founding.

Such dark days test a startup's mettle, and only those that have developed a number of critical traits have a chance of emerging from the test stronger, wiser and closer to success. Such trials by fire at e-Silicon, Atheros, Jasper Design Automation and Fulcrum Microsystems hold clues for other fledgling companies searching for the recipe to a successful business.

For some entrepreneurs, the reasons for starting a company are clear and concise; for others, they're more a matter of happenstance or necessity. For eSilicon's Harding, "the way to innovate is to focus. With a startup, you control your own destiny, and you can achieve your goals without external influences."

Harding's first taste of the rewards of being able to focus completely on a project came with the success of Protocol, a division of Zycad that developed into the first commercial intellectual-property bank. "It grew to $20 million per year, or 40 percent of Zycad's revenue," he said.

In 1994 Harding joined Cooper & Chyan, which Cadence Design Systems Inc. acquired in 1997. Harding served as president and CEO of Cadence until founding eSilicon in March 2000. The Sunnyvale, Calif., company's model was to "always ship silicon — not just design," said Harding.

By contrast, Teresa Meng, the founder of wireless-LAN company Atheros Communications Inc. (Sunnyvale), never planned a startup — it came about only because no one would back her ideas on how to apply digital signal processing to compensate for the limitations of CMOS. "They said, 'Come back in seven to nine years,' " said Rich Redelfs, who served as Atheros' president and CEO from October 1999 to May 2003. Redelfs is now a partner at venture firm Foundation Capital, one of the original investors in Atheros.

Instead of waiting, Meng took a sabbatical from Stanford University and launched Atheros in May 1998, with the goal of architecting an all-CMOS 5-GHz radio. The company introduced an IEEE 802.11a-compliant model in August 2000 and spent the next five years fighting for its life against a slew of startups as well as aggressive development campaigns by incumbents like Intersil, Intel and Broadcom.

For Kathryn Kranen, president and CEO of Jasper Design Automation (Mountain View, Calif.), the lure of another startup was just too irresistible. Kranen left her position as president and CEO of Verisity Design Inc. in late 1999, some 18 months before its initial public offering. The company has since been snapped up by Cadence. "I thought I'd retire on that IPO," Kranen said, "and I left [the industry] for four years." During that time, she focused on the new demands of motherhood and pursued hobbies.

But it wasn't long before the bug bit again. Mike Schuh, a general partner at Foundation Capital, asked Kranen to look at Jasper, then called Tempus Fugit. The company's founder and CTO, Vigyan Singhal, had already approached Kranen with his idea for an interactive model for performing full formal functional verification.

"I told Mike it [Jasper] was one of the diamonds — then he asked me to be its CEO," said Kranen. "I was blissfully retired, but I was intrigued; functional verification was my niche. I knew the dream team and the customers, and so agreed to at least build a market analysis." But a casual role was not to be. On May 19, 2003, Jasper announced that Kranen had formally signed on as top boss.

Whatever their reasons for diving into a startup, all three agreed that it was never solely the prospect of money, whether through an IPO or a buyout. "Silicon Valley is a graveyard of those hoping to strike it lucky," said Harding. "Love what you're doing, and the money will follow."

That kind of passion held true for Redelfs and his team at Atheros. "We were a big part of the Wi-Fi phenomenon," he said. The group steered clear of anyone with a get-rich-quick mentality, he added. "It's about mission, meeting goals and solving customer problems."

Waiting two or three years for the big buyout is "one of the biggest mistakes you can make," said Robert Nunn, president and CEO of Fulcrum Microsystems Inc. (Calabasas Hills, Calif.). "You end up making suboptimal decisions [for the long term], and then, if you don't get bought up, you're dead."

So, now what?

Once the decision is made to start a company, the true struggle begins, starting with the technology choice and business model. Then come the tasks of defining the company culture, gaining funding, achieving and managing growth, and adapting to ever-changing market conditions. If an IPO is a possibility, its pros and cons must be considered carefully.

For David Silverman, partner at venture capital firm 3i (Menlo Park, Calif.), the technologies and business models that are most likely to get funding are those that have broad, horizontal applicability. "In particular, we're looking for interesting expertise in design tools, power semiconductors, mixed signal and analog," he said. The bubble days of "hot spotting," whereby a VC would throw millions at a hot but niche technology, are over.

Fulcrum found that out in 2001, when it first went looking for funding. "The VCs started asking the really tough questions," said Nunn. They're not swashbuckling VCs anymore; they're very methodical."

Atheros' Redelfs recalled his direst moment: Two days before a board meeting in 2000, the first chips had come back — and they didn't work. "The problem was fundamental to the architecture, and we had to tell them," he recalled. Fortunately, after listening to the description of the problem in all its gory detail, the board didn't abandon the group but got even more excited after recognizing just how complex the problem was — and how far ahead of everyone else the Atheros team was in solving it. But solving a big problem is only part of it, said Redelfs. "Make sure it's for a big market, too."

In addition, engineers must put aside their natural tendency to overcomplicate matters. "Engineers like really complex machines, but people buy solutions to their problems," said Silverman of 3i. "So keep it market-focused."

Once the technology and business model have been defined, it's time to seduce the VCs. While venture funding was tough to come by two years ago, "the store is open for business now," said Silverman. "There's a lot of capital out there." EE Times' own VC count for 2005 supports Silverman's comment; it currently stands at $784.6 million.

But beware: "Not all VCs are alike," said Harding. "You have to know if they're financial analysts or investors that believe in the market and will see it through."

"One thing we did right was deal with VCs we liked and could do business with," said Fulcrum's Nunn. "You have to trust them." However, Nunn acknowledged, the company should have responded to VC feedback earlier and modified its plans accordingly, instead of automatically going door-to-door. "That early feedback is key."

Working with multiple VCs tends to slice the pie too many ways, entrepreneurs agree. On the other hand, it provides support if one VC grows disillusioned; one or all of the others can buy out its share.

Once the funding is secured, the startup has to build out its team. "You look for character and experience" when hiring new employees, said Harding. "They need to be smart, team players and self-motivated — and you can't instill that."

"Hire people you know are great, but understand that they may not work out over something as simple as the fact that it's a different protocol or tool," said Kranen of Jasper Design. "You have to fire and turn over — even your friends." With a strong background in sales, Kranen believes in having two to three salespeople all trying different things until they "crack the code" for selling into a particular market. "If one of them hasn't had a good idea in three months, let them go."

As the company ramps up, flexibility in adapting to changing markets is paramount. "Very few startups execute the original business plan," said Harding. "You must understand and exploit every fundamental trend in the market in which you compete."

Back from the brink

When eSilicon's top brass met on that fateful day in September 2001, it was the start of a rethink of the company's own model. The focus became the consumer market — "it's what kept the semiconductor business afloat," said Harding. A fan of "option theory," by which a startup should always have a contingency plan and should not rely on one customer and the vagaries of its market, Harding made sure eSilicon had a variety of customers.

But he also believes that to make it, a startup needs a "hit record." For eSilicon, that hit didn't come in time to prevent layoffs in the aftermath of 9/11. But it did happen eventually, when the company won the socket for the audio central processing system and software in the Apple iPod.

The rest is history. Sales went from $9 million in 2003 to $30 million in 2004. For fiscal 2005, which ended in March, Harding said, eSilicon posted revenue of $91 million. Early this month, the company announced it had been named one of the Red Herring 100 private companies of North America. True to form, that's still not enough for Harding. "We're not as good a company as the numbers suggest," he said. "We're still a couple of years from being a world-class company."

The flexibility and persistence that pulled eSilicon from the brink also saved Atheros. The company was focused on 802.11a wireless LANs in the 5-GHz band but got thrown a couple of "curve balls," Redelfs said. The popularity and longevity of 802.11b, for example, meant Atheros had to work on an 802.11a/b solution before it even began shipping .11a chips.

Then came 9/11 and the market slowdown; layoffs became inevitable.

"But fundamentally there was a very big opportunity for Wi-Fi overall," Redelfs said, "and we had the only game in town" for 802.11a.

With .11a delayed in the market, partly for regulatory reasons, Atheros relied on its rapid design-turnaround capabilities and quickly introduced an 802.11g chip set. That led to fast growth for six successive quarters starting in 2003 and to an annualized run rate of $50 million. Full vindication came in early 2004, when Atheros announced that its chip set was in eight of the 10 largest PC vendors' designs. "We had done it!" he said.

Indeed, with the closure of IceFyre confirmed in the middle of this month, Atheros has the distinction of being the "last man standing" of the 20 or so original U.S.-based standalone WLAN chip startups.

Redelfs left in May 2003 to make way for the more technically savvy Craig Barratt, its current president and CEO, and the man who led the company through its IPO in 2004. Meng returned to Stanford after a two-year sabbatical and remains Reid Weaver Dennis Professor of Electrical Engineering there.

As for Jasper's Kranen, her technical and business savvy will be recognized at the upcoming Design Automation Conference, where she will be presented with the prestigious Marie R. Pistilli Women in EDA Achievement Award on June 13.