Fingerprint of failure

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Naeem Zafar, Veridicom's third and current CEO

Veridicom Inc., a Silicon Valley fabless semiconductor start-up, had everything going for it when it launched in 1997.

Its fingerprint recognition technology had been under development for more than a decade. The product, a fingerprint scanning and verification chip, offered an alternative for network authentication that was more secure and easier to use than passwords. The potential market included laptops and cell phones for companies whose security concerns were growing as fast as the Internet.

Founding CEO Tom Rowley was a security expert and a seasoned entrepreneur who had successfully run another start-up. He had a respected VC partner and his two cofounders were scientists who did the early R&D. The company raised more than $33 million in less than three years.

Disruptive technology, a promising market, brain power and solid financing. What could go wrong?

Just about everything.

The chips kept breaking. The market did not develop as fast as or in the direction that Veridicom had hoped and it could not adapt. The board lost patience and replaced Rowley. The second CEO feuded incessantly with his executives, climaxing in a failed coup.

Any one of these difficulties alone might not have spelled failure. Veridicom lost $33 million because it misread the market *and* the executive team was embroiled in conflict *and* it ran out of money.

But the story doesn't end there. True to Silicon Valley culture, Veridicom arose from the ashes with new investors and a third CEO. Meanwhile, some former executives launched a competitor.

The Veridicom story is a cautionary tale about things that can go wrong even at a start-up with all the right stuff. Technology is almost always buggy. Many start-ups profess to be nimble but do not adroitly change market strategies when needed. Impatient boards sour on CEOs. Strong personalities clash. Veridicom illustrates how difficult it is to bring together technology, talent and money to build a successful product for a market that may not yet exist.

To help others avoid a similar fate, ELECTRONIC BUSINESS has reconstructed the Veridicom story based on interviews with nine former and current officers and executives, including Rowley and Naeem Zafar, the third CEO. (The second CEO, Michael D'Amour, declined to be interviewed.) They give different accounts and cite different reasons for their failure. However, the various viewpoints shed light on how a promising start-up can degenerate into a missed opportunity.

"The market did not respond and the leadership was not adequate," says Lucio Lanza, former Veridicom board chairman and a former partner at U.S. Venture Partners (USVP), Menlo Park, CA, the start-up's first investor. "The management team was mismatched for the market the company needed to move to. It needed to move from a silicon company that sold to OEMs to a systems company that sold to corporate CIOs."

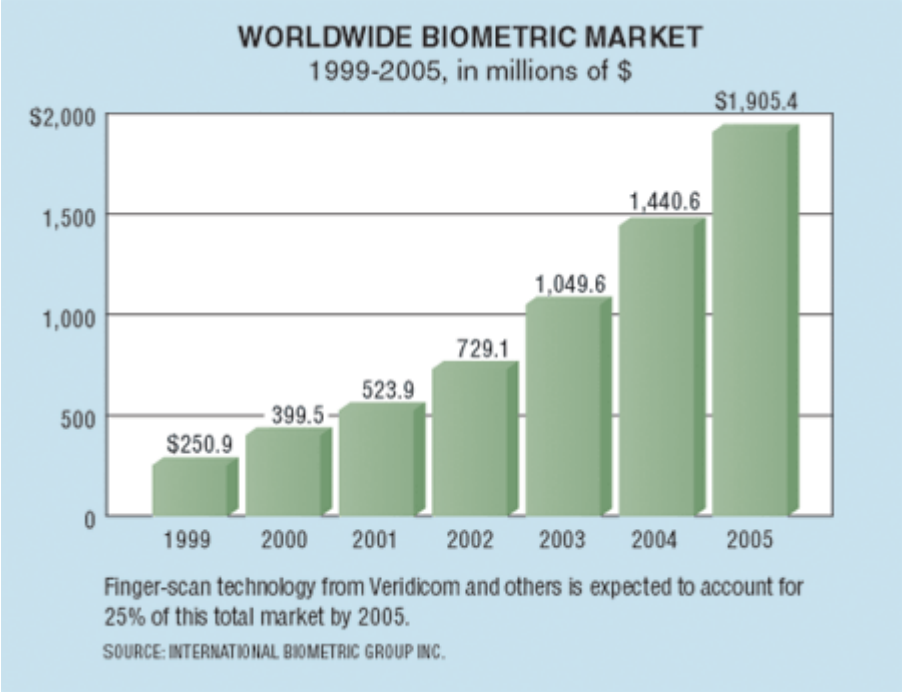
Former Veridicom executives argue that the board was inept and impatient. "The No. 1 reason early-stage companies fail is because the investors lose heart," says Rowley. "The winners are those who have patience."

1997: Promising technology

Like thousands of start-ups, Veridicom began with promising technology that had been under

development for years. Anthony Russo, a scientist at AT&T Bell Laboratories, Murray Hill, NJ, wrote his master's thesis on fingerprint recognition in 1985. The labs eventually developed a research chip. In 1996, Bell Labs' new parent, **Lucent Technologies Inc.**, decided to spinout a company to build a commercial chip.

Lacking start-up expertise, Lucent turned to USVP, where Rowley was an entrepreneur in residence. "Since he had a security background, we asked him to take a look at the technology and put together a plan," says Lanza. Rowley believed the fingerprint scanning chip could be significantly cheaper and more accurate than the optical fingerprint readers in use.



Lanza, a long-time successful VC and former **Intel Corp.** engineering director, decided to fund the chip, which was the kind of disruptive technology he liked. First, he wanted to verify that the materials would not break and that a market existed. In early 1997, USVP spent $300,000 to find out.

Materials were a concern because the user would press a finger onto a chip the size of a postage stamp. "God didn't make silicon to be touched," says Lanza. They hired a leading consultant who advised them that any materials problems could be overcome.

As for the market, says Lanza, PC makers indicated they would be interested in putting the chip in laptops if it cost less than $10. He concluded that the initial buyers would be OEMs but that corporate CIOs would need to be swayed to drive the market. "The business wasn't chips. The business was providing security."

Lanza made Rowley CEO because, "Tom understood the market enough and wasn't intimidated by the technology." Rowley began his career as an engineer at the National Security Agency and later worked on several start-ups. In the 1980s, he became CEO of **Centigram Corp.**, Sunnyvale, CA, a voice-mail start-up that had a successful IPO. He later worked at **National Semiconductor Corp.**, Santa Clara.

Veridicom formally launched in San Jose in March 1997 with Rowley, Russo and Larry O'Gorman, another Bell Labs scientist, as cofounders. USVP put up $2 million, bringing its total stake at the time to $2.3 million. Lucent put up the intellectual property. Rowley later raised a second round of

$8.5 million, bringing total funding to $10.8 million. Second-round investors included **AT&T Ventures**, Basking Ridge, NJ; Intel Corp., Santa Clara; Lucent and USVP.

1998: Meet the new boss

Rowley wasn't a silicon expert. For that he hired two vice presidents. The chips kept breaking when touched or when hit by static electricity from the user. Technology hurdles like this are common at start-ups. By mid-1998, Rowley had fired the two vice presidents and brought in John Meyer as chief operating officer. Meyer had three decades in the chip industry. By late 1998, Meyer, with help from a consultant, was making chips that didn't break.

It was too late for Rowley, however. The board replaced him in December 1998, a decision that still mystifies former executives. "Everyone liked Tom," says Russo. "You could trust him." Former executives assume he was fired because he took too long to solve the chip breakage problem.

"We did the HONORABLE THING. We did all the clean-up work and the old shareholders agreed it was a write-off."
—Naeem Zafar, Veridicom's third and current CEO

Not so, says Lanza, declining to explain exactly why he replaced Rowley. He suggests that Rowley banked too much on marketing to OEMs. "Every start-up must have enough understanding of the product, the technology and the market," he says. However, "many start-ups make the mistake of jumping on a market hint and assuming it is the market."

Lanza admits he didn't fully understand a key market nuance himself until six months before he left Veridicom in 2001. They needed to market the concept to CIOs while selling silicon to OEMs. "Veridicom interpreted the interest from PC makers as a sign that the market was about to explode. But the PC makers made it clear they would not help create the end-user market. We had to create demand from user companies." In hindsight, Lanza says, neither Rowley nor the second CEO understood this.

Hindsight was irrelevant in December 1998 when Lanza hired D'Amour as the second CEO. D'Amour came from the electronic design automation (EDA) business and had previously worked with Lanza at Daisy Systems Inc., an early EDA company. In the late 1980s, D'Amour founded **Quickturn Design Systems Inc.**, Mountain View, CA. He was CEO for a year until a new one was hired and he became a vice president. Quickturn had a successful IPO.

The executives hired by Rowley were skeptical. "D'Amour was forced on us," says Tony Bozzini,

former vice president of OEM sales. "He knew nothing about silicon, about security or selling to OEMs."

Under similar circumstances, many start-up replacement CEOs would fire the old executives and hire new ones loyal to him. But D'Amour did not, a decision he lived to regret. He tried to put his stamp on the team by hiring Zafar as vice president of marketing. The two had worked together at Quickturn.

1999: No love for D'Amour

Veridicom was not immune to the Internet fever sweeping the Valley. D'Amour wanted the company to become an authentication service that would verify fingerprints over the Internet the way **Verisign Inc.** , Mountain View, verifies digital signatures. Zafar believes this vision was one reason the board hired D'Amour. But the project also diverted resources from the chip and caused a loss of focus, which often proves lethal to a start-up.

Veridicom, in its latest incarnation. Staff of new Veridicom in front of their new office in Sunnyvale, CA., including CEO Naeem Zafar (in the middle).

By October 1999, D'Amour had secured a third round of funding for $22.5 million, bringing the total to $33.3 million. The lead investor was the venture arm of Deutsche Bank AG, Frankfurt, Germany. D'Amour now had the cachet to do what he wanted.

In 1999, Veridicom was first to market with a finger-scan chip, quickly gaining customers and respect. The first design win came from **Acer Group**, Taiwan, for a laptop. Sales were modest, with no volume expected until the price fell well below the $30 to $50 for which the chip sold. But D'Amour would not lower the price to gain volume, which upset the sales staff. Veridicom had a million-dollar quarter in late 1999 with most sales in Asia and Europe. It also had expanded beyond chips to building a peripheral fingerprint reader for desktops.

The market's slow growth stymied Veridicom for years. "No one in the industry thought the market would take this long to develop," says Michael Thieme, senior consultant at International Biometric Group Inc., New York. "It has been just around the corner for a long time" (see bar chart, above). He estimates the finger-scan market was only $57.2 million in 2000.

D'Amour did not wait for the market. He began to work on the authentication service. He decided Veridicom also needed to develop application software to accelerate demand for chips. It had no application developers so it acquired a security software firm in Prague for $10 million, mostly in stock.

Now Veridicom's plate was too full. It was making chips, upgrading algorithms, building the peripheral, writing server software, building infrastructure for the authentication service, developing applications, integrating the acquisition and managing nearly 90 people on three continents. "We were trying to execute too many things and didn't have enough money or talent,"

says Bob Derby, vice president of worldwide sales.

Thieme agrees: "They were unable to support all these initiatives. Even now security companies build sensors, algorithms or applications, but not all three."

D'Amour also had confirmed his executives' worst fear. "He was a good marketing guy. He used his gift of gab and the contacts we all had to raise money," says Meyer. "But he oozed arrogance. He couldn't make tough decisions. He was not the person people wanted to follow. Hiring him was the biggest mistake the company made."

Even Zafar, a D'Amour loyalist, is critical: "His vision was grandiose, [but] his management experience wasn't there."

In 1999, Veridicom expected sales of $3 million. It built up inventory but missed the target and was stuck with $2 million in excess chips. Reasons for the bad forecast differ. Meyer contends D'Amour made the forecast over objections from the sales team. Zafar says the sales team made the projection and wonders if they purposely misled D'Amour. At any rate, "the sales weren't there. The product was ahead of its time," says Meyer. "At this point, things started to get really ugly."

2000: Executive coup

Veridicom had become so dysfunctional that the board called it the start-up from hell—and meant it, according to one former Veridicom executive. Morale stunk. Staff didn't know which executive to believe. Turnover was heavy. Executive meetings nearly turned into brawls. At least once, two adversaries stood on the table and shouted at each other, according to Zafar.

The company spent money too quickly. The excess inventory hurt. Plus, Veridicom's transportation carrier misplaced a $250,000 shipment from the fab in Asia—the chips either stolen or lost, says Zafar. D'Amour would not take simple steps to cut costs, such as requiring executives to fly coach. "People were flying to and from Europe for $7,000 a pop," says Zafar.

By January 2000, Derby and Meyer had had enough. Each implored Lanza to replace D'Amour. Russo, Bozzini and a director, Peter McCoy, had similar conversations.

The mutineers asked Zafar to join them. He refused to go behind D'Amour's back and urged a direct confrontation instead. "But they went to the board. I alerted D'Amour," says Zafar. O'Gorman also aligned with D'Amour.

The board was split, but Lanza (who declined to comment on this) held sway, according to Zafar. "Whatever happened in those meetings, they were able to avert this coup," he says. "They also told D'Amour to fire those guys."

Derby either was fired or quit—accounts differ. But D'Amour didn't fire anyone else. "He still thought he could turn them around," says Zafar.

Bozzini quit in May 2000 because "after the failed coup we were still having debates about the direction of the company," he says. Russo quit in February 2001.

2001: Death and resurrection

Despite chaos, the chip engineers kept innovating, securing at least 20 new patents. And O'Gorman had an idea for cutting the cost of the chip. The existing chip was big enough to place a fingertip on

so it could take a single image of a print. O'Gorman's idea was a chip one-tenth the size that took several images of the fingerprint in sections as the user slid his finger over it. Software would assemble the images into a whole. Called a sweep sensor, the smaller chip would use less silicon, making it cheaper and better suited to small devices like cell phones. "The original chip was never going to make the market take off," says Meyer. "We had to build the sweep sensor."

Meyer and O'Gorman flew to Helsinki to demonstrate a jerry-built version of the sweep sensor to **Nokia Corp.** Nokia told them that if Veridicom could actually build the new chip it would be better than anything they had seen. "If we had not been doing too many things already, we could have put energy into the sweep sensor," says Meyer.

Veridicom never made the chip. It ran out of money.

"We waited too long to raise a third round," says Zafar. "We told D'Amour he needed to raise more money, but he didn't trust any executives. He focused instead on minutia."

In November 2000, D'Amour finally hired an investment bank to help raise cash. The Internet bubble was bursting but Veridicom had enough going for it to interest investors. On Feb. 28, 2001, less than an hour before the executives were to close the deal, the new lead investor pulled out. One source, who requested his name be withheld, says the investor got cold feet because some earlier investors, who had their own financial troubles, declined to put in a pro rata share for the third round.

Lanza couldn't help. He had recently left USVP over philosophical differences. (He says Veridicom was not the reason.) Veridicom's board replaced him with Kevin Vitale, who also was going to replace D'Amour after the third round closed. Vitale had experience selling to corporate CIOs, so Veridicom most likely would have changed strategies.

After the third round collapsed, however, the board told D'Amour to lay off everyone and give the keys to TransAmerica Corp., San Francisco, the company's banker. The Internet bubble was bursting. Dozens of companies were closing, the boards and executives walking away from obligations to employees, lenders and vendors. Under California law, laid-off employees must be paid for accrued vacation but Veridicom had no money.

D'Amour and Zafar believed it was wrong to stiff the workers. On March 1, 2001, they laid off about half the employees, including Meyer, promising they would get paid. They told TransAmerica they could accomplish a more lucrative fire sale than the bank, which didn't understand their IP's value. They said they could sell enough assets to pay off $12 million in secured loans, including $6 million owed the bank. The bank gave them three weeks and offered $100,000 to cover salaries of the remaining employees. Zafar and D'Amour explained their plan to the board, which didn't object. Some investors stood to recoup bridge loans they had made.

Zafar turned his 18 Silicon Valley employees—mostly engineers and programmers—into a collection and telesales team. They called every active customer, about 40, to try to collect $2.8 million in outstanding accounts receivable and ask for new orders. Veridicom still had saleable inventory. D'Amour balked at Zafar's tactics, but stepped back to let the vice president run things, Zafar says.

During the second week in March a check for $250,000 unexpectedly arrived. It was the insurance money for the missing chips. The bank never had to cover the salaries. Zafar ran Veridicom for six months on the insurance money, collected receivables and new sales. In 2001, when its investors left it for dead, Veridicom had about $2 million in sales.

Zafar contacted customers and other companies that might buy assets: hardware, software,

algorithms, patents and engineering talent. By the third week in March, he had a few solid offers. He negotiated four deals.

STMicroelectronics NV, Geneva, bought the software group in Prague, a non-exclusive license for algorithms, some plastic molds and hardware. **Fujitsu Ltd.**, Tokyo, bought non-exclusive licenses for algorithms and two chip designs. **Precise Biometrics AB**, Lund, Sweden, bought two pending patents and a non-exclusive license for algorithms for smart cards. Veridicom retained non-exclusive rights to most of the IP it sold.

A fourth company, **Pass21 Co. Ltd.**, Korea, which was buying Veridicom chips for its wired and mobile commerce applications, invested for 10% ownership.

The four deals netted $12 million, according to Zafar. He says Veridicom paid off 100% of its secured loans, including bridge loans; it paid vendors and other unsecured creditors 31.6 cents on the dollar; and it paid each laid-off employee two weeks vacation and $1,100 in severance. The original investors lost their equity.

Zafar also spent $250,000 to legally separate from the old company and its investors but retain rights to the IP, name, logo and trademarks. The old corporate entity changed its name to **Authenticom Inc.** (it exists in name only), so the new company could use Veridicom. Zafar raised $4.7 million from three angel investors and became CEO, controlling 30% of the company. D'Amour left, but got equity in the new Veridicom.

"We did the honorable thing. We did all the clean-up work and the old shareholders agreed it was a write-off," says Zafar. "We did everything we needed to create a new entity. We did it with our lawyers' blessing. As of Aug. 21, 2001, we were a new Veridicom."

"Unusual, but brilliant," declares one long-time Valley observer after hearing a description of the rescue operation.

2002: Out with the old, in with the new

What does the new Veridicom have going for it? Zafar points to name recognition, about 30 regular customers, 30 or so patents and more than 100,000 fingerprint sensors in use, mostly outside the United States. It resumed making chips in June and is developing a fourth generation. The chip price is now as low as $20. It has enough money to last through 2002 and is trying to raise $7 million. Products include the chip, chipsets, peripherals and server software. It no longer develops applications and the authentication service is dead.

Zafar is aiming at two markets: corporate IT—the piece Lanza says was always missing—and security systems for things like buildings, airlines and autos. His strategy is to partner with systems integrators, value-added resellers and in some cases directly with end-user entities. Later, he says, he can focus on laptop and cell-phone OEMs. He thinks that market is still a year or two from getting hot.

However, several chip makers now have entered the market, including those to whom Zafar sold licenses. Most of the former Veridicom executives say Zafar doesn't fully understand silicon or the market. More importantly, they say, he's lost the best and brightest engineers.

Some of the engineers landed at **I-Control Transactions Inc.**, Campbell, CA, a start-up launched by Bozzini and McCoy in January 2001. They hired five former Veridicom staff, including Russo and the engineer who worked on the sweep sensor idea with O'Gorman. People close to I-Control say its

product will be the smaller, cheaper sweep sensor that Veridicom didn't build. Bozzini won't confirm this but he says he's talking to telecom giants about funding. Some former Veridicom executives say Bozzini is the one to bet on if I-Control and the new Veridicom end up competing, which is possible.

So even in their new incarnations, former Veridicom executives are still debating where the market is, how to attack it and the abilities of their former colleagues to do the job.

That's just the nature of Silicon Valley, Zafar says: "What makes this Valley great is strong personalities with strong views. We have no fear of failure. People who get fired always land on their feet," (see "Cause of flameout: Unspoken," below).

Each former executive did land feet first. Bozzini, McCoy and Russo got the new company. O'Gorman returned to the research world. Rowley is CEO of a start-up, **Counterpane Internet Security Inc.**, Cupertino, CA. Lanza started his own VC firm, Lanza Tech Ventures, Palo Alto, CA. Meyer is senior vice president of business development at **Alliance Semiconductor Corp.**, Santa Clara.

As for D'Amour and Derby, who were two of the biggest adversaries, they're both consulting—not together of course.

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