April 16, 2010

Out of the Loop in Silicon Valley

By **CLAIRE CAIN MILLER**

San Francisco

CANDACE FLEMING'S résumé boasts a double major in industrial engineering and English from Stanford, an M.B.A. from Harvard, a management position at Hewlett-Packard and experience as president of a small software company.

But when she was raising money for Crimson Hexagon, a start-up company she co-founded in 2007, she recalls one venture capitalist telling her that it didn't matter that she didn't have business cards, because all they would say was "Mom."

Another potential backer invited her for a weekend yachting excursion by showing her a picture of himself on the boat — without clothes. When a third financier discovered that her husband was also a biking enthusiast, she says, he spent more time asking if riding affected her husband's reproductive capabilities than he did focusing on her business plan.

Ultimately, none of the 30 venture firms she pitched financed her company. She finally raised $1.8 million in March 2008 from angel investors including Golden Seeds, a fund that emphasizes investing in start-ups led by women.

"I didn't know things like this still happened," says Ms. Fleming, 37. "But I know that, especially in risky times like the last couple years, some investors kind of retreat to investing via a template." A company owned by a woman, she adds, "is just not the standard template."

Though many people say that outright sexism is rare in the tech world these days, the barriers that Ms. Fleming encountered aren't unusual. Tech communities in Silicon Valley and in other hubs — like New York, Austin, Tex., and Boston, where Ms. Fleming lives — pride themselves on operating as raw meritocracies ready to embrace anyone with a good idea, regardless of education, age or station in life.

For women, though, that narrative often unfolds differently.

Women own 40 percent of the private businesses in the United States, according to the Center for Women's Business Research. But they create only 8 percent of the venture-backed tech start-ups, according to Astia, a nonprofit group that advises female entrepreneurs.

That disparity reaches beyond entrepreneurs. Women account for just 6 percent of the chief executives of the top 100 tech companies, and 22 percent of the software engineers at tech companies over all, according to the National Center for Women and Information Technology. And among venture capitalists, the population of financiers who control the purse strings for a

majority of tech start-ups, just 14 percent are women, the National Venture Capital Association says.

That reality is even more complex when race is factored into the mix. Small percentages of workers in information technology are African-American, Asian or Hispanic, and that number is even smaller for women.

"It's not like people are making an effort to exclude people, but I see very little diversity in the candidate pool," says Aileen Lee, a partner at Kleiner Perkins Caufield & Byers, the big venture capital firm. She says this could reflect the different educational paths men and women follow in high school and college: men, for a variety of reasons, are more likely to pursue computer science and engineering degrees and subsequently rise through start-up or management ranks.

WOMEN now outnumber men at elite colleges, law schools, medical schools and in the overall work force. Yet a stark imbalance of the sexes persists in the high-tech world, where change typically happens at breakneck speed.

And analysts say more than social equity is at stake. A dearth of ideas and participation by women in the technology churn has business consequences as well.

The latest Web start-ups — for socializing, gaming and shopping — often attract more women than men as users. And many products from tech giants are aimed at women. But when Apple unveiled its new mobile computing device, it called it the iPad — a name that made many women wince with visions of feminine hygiene products.

Research indicates that investing in women as tech entrepreneurs is good for the bottom line. Venture-backed start-ups run by women use, on average, 40 percent less capital than start-ups run by men and are increasingly involved in successful initial public offerings of stock, according to a recent white paper by Cindy Padnos, a venture capitalist who compiled data from 100 studies on gender and tech entrepreneurship.

"When you have gender diversity in an organization, you have better innovation, and I don't know where innovation is more important than in the high-tech world," says Ms. Padnos, who recently founded Illuminate Ventures, which invests in start-ups led by women.

Firms like hers, along with nonprofit organizations like the National Center for Women and Information Technology, Astia and Springboard Enterprises, are trying to fix the problem by raising awareness, mentoring entrepreneurial women and introducing them to investors.

"The good news is that Silicon Valley will see this change," says Monica Morse, a trustee at Astia. "They will chase the person they think will make the money, regardless of whether they wear a skirt."

Even so, some people say substantial barriers still confront women trying to scale the technological peaks. "It all boils down to education and accessibility and role models," says Anu

Shukla, who has founded three tech start-ups. "There aren't enough women entrepreneurs because they don't see enough women entrepreneurs ahead of them and successful."

The same still holds true in the tech world's corporate corridors.

"As you look around the entry-level management positions, even just the ranks of engineers or product people, there just aren't many women," says Carol A. Bartz, the chief executive of Yahoo. "So therefore, mathematically, it tells you it's impossible for them to move up and run something."

MATH and science classes at Ms. Fleming's all-girls high school in Albany weren't as good as those at the all-boys school across the street, she says, so she trekked there and quickly became accustomed to being the only girl in the room. At Stanford, men outnumbered women by three to one in her engineering classes.

For Poornima Vijayashanker, an Indian immigrant, college was also a time when the promise of an engineering career first became apparent. Although all the men in her family were engineers, she spent her childhood dreaming of becoming a lawyer.

"To me, engineering seemed like a 9-to-5 job," she recalls. "It wasn't glamorous or exciting."

It wasn't until a computer science class at Duke that she "first understood what engineering was all about — building something very quickly and being able to play with it." She double-majored in computer science and electrical engineering — inspired, she says, by the many young women who were professors in the department.

Ms. Vijayashanker, 27, became the only female engineer at Mint, a personal finance Web site started by a friend from Duke that was sold to Intuit for $170 million last year. Now she is starting her own company, BizeeBee, making software for small business, out of her apartment in Palo Alto, Calif.

But she is weighing a new set of challenges. Though she is just a decade younger than Ms. Fleming, she has seen enough entrepreneurial women encounter obstacles that she is trying to navigate around those issues — like timing motherhood, for example.

Ms. Vijayashanker is starting her company now, partly because she wants to have a family in a few years and says the tech start-up lifestyle isn't hospitable to child-rearing. That's why, she says, many young women prefer working at big companies to starting their own.

"Girls have certain family goals they want to accomplish," she says. "Working 60 hours a week is difficult because it requires a life sacrifice."

Unlike Ms. Fleming and Ms. Vijayashanker, Karen Watts never got the engineering bug. Ms. Watts, the 38-year-old founder and chief executive of Corefino, which makes business accounting software, was taking college math classes by the time she got to high school, but engineering didn't grab her attention.

"It just never dawned on me to do it," she says. "You're just sitting there pecking away. I need more human interaction."

That attitude is prevalent among young women. Girls begin to turn away from math and science in elementary school, because of discouragement from parents, underresourced teachers and their own lack of interest and exposure, according to a recent report by the Anita Borg Institute for Women and Technology and the Computer Science Teachers Association.

Just 1 percent of girls taking the SAT in 2009 said they wanted to major in computer or information sciences, compared with 5 percent of boys, according to the College Board.

Only 18 percent of college students graduating with computer science degrees in 2008 were women, down from 37 percent in 1985, according to the National Center for Women and Information Technology.

One reason is that engineering has a serious image problem, many women in the field say.

"There's a really strong image of what a computer scientist is — male, skinny, no social life, eats junk food, plays video games, likes science fiction," says Sapna Cheryan, an assistant professor of psychology at the University of Washington who has researched why few women choose computer-science careers. "It makes it hard for people who don't fit that image to think of it as an option for them."

Women in tech cheered this year when Mattel announced that Barbie, its perennially popular doll whose careers have included supermodel and executive, would have a new calling as a computer scientist (complete with her own hot-pink laptop).

A doll, however, is still a doll. Showcasing flesh-and-blood tech entrepreneurs who are women — and have lives beyond writing code — will go a long way toward encouraging more girls to study computer science, Ms. Cheryan says.

While Ms. Bartz of Yahoo, along with eBay's former chief executive, Meg Whitman, and Hewlett-Packard's former C.E.O., Carly Fiorina, offer tangible examples of women who have reached prominent positions in Silicon Valley, other role models like them are scarce.

Many of the dozens of women interviewed for this article mentioned Marissa Mayer, a senior Google executive who is also a media fixture, as someone who gives them hope. Jessica Verrilli, who works on business development at Twitter, has met Ms. Mayer a couple of times.

"Little does she know that in my mind, it's been really meaningful," she says. "As a woman working in tech, I really do admire other women who have had successful paths."

At Stanford, female graduate students in computer science are encouraging freshman women through a group called Women in Computer Science. "It helps to show a human being who does computer science and says, 'I also really like going to the theater or listening to music,' so

younger women can see you still have a personality and do technology," says Maria A. Kazandjieva, a doctoral candidate and co-president of the group.

When women take on the challenges of an engineering or computer science education in college, some studies suggest that they struggle against a distinct set of personal, psycho-social issues.

In a study of 493 undergraduate engineering majors' intentions to continue with their major, men tended to stick with their studies as long as they completed the coursework, while women did so only if they earned high grades.

"Women's intentions to persist in undergraduate engineering were dependent upon higher academic standards compared to men," concluded the study, published in 2009 in the Journal of Science Education and Technology.

Even women who soldier though demanding computer science and engineering programs in college don't subsequently create tech start-ups on a par with their male counterparts. Analysts say another set of issues can persuade female engineers and computer scientists to pursue other paths after they leave school.

TWO weeks after Ms. Fleming's second baby was born, when she was cooped up at home and exhausted, the phone rang. It was a Harvard professor she knew. He said that he had developed an algorithm to monitor people's comments about businesses on social media platforms — and that he needed someone to turn the idea into a company.

Ms. Fleming bit.

She wrote the business plan while breastfeeding, and, after hiring two engineers, held meetings with them perched on her child's bouncy blow-up castle.

"I get the biggest high out of bringing teams together, achieving something with a group," she says. "That's why I work. That's why I love it."

On her way to becoming an entrepreneur, Ms. Watts has followed a slightly different route from Ms. Fleming.

At the age of 27, after brief stints at an accounting firm and start-ups, she became chief financial officer at a sports start-up called Rivals.com. In that job, she realized the value in automating routine paperwork and dreamed up Corefino.

She didn't start it, though, until she had worked at four more companies. "I have to know everything; I have to have it all figured out," she recalls thinking.

Many analysts and entrepreneurs say that attitude — rooted in a lack of confidence — is the main reason that when women do pursue start-ups, they often do it later in life than men.

Ms. Watts was also aware that the hurdles for financing were higher for women. Before she pitched venture capital firms, she made sure they had a woman as a partner and had funded companies led by women.

"If they're not used to women in a senior position," she says, "you're going to be fighting a bunch of battles, and being an entrepreneur is hard enough."

She learned how to handle male-dominated pitches early in her career, when Rivals.com was buying another start-up. She was in the conference room, pouring a cup of coffee, when the other company's executives and lawyers walked in. They proceeded to discuss the lowest bid they would accept, as if she wasn't there.

"They assumed I was the admin," or secretary, she says. When the group sat down to negotiate, she adds, "Their faces went white as ghosts."

She was 31 when she started Corefino and decided not to have children. "I don't know how I could have my own newborn and run this company," she says. "I just didn't want to shortchange the child or shortchange the job."

Ms. Watts's decision is one that many female engineers weigh. They also say the tug-of-war between work and family is more acute at tech start-ups because of the long hours they require — and the take-no-prisoners culture of Silicon Valley.

[According to](#) the National Center for Women and Information Technology, 56 percent of women with technical jobs leave their work midway through their careers, double the turnover rate for men. Twenty percent of them leave the work force entirely, and an additional 31 percent take nontechnical jobs — suggesting that child-rearing isn't necessarily the primary reason women move on.

Many are pushed to pursue supervisory and management jobs instead of "individual contributor" jobs involving deep technical expertise, according to [a recent study](#) by the Anita Borg Institute, an organization that explores the impact of women on the technology field.

"There really needs to be more effort from companies and from educational institutions to engage women in the innovation process from very early on," says Caroline Simard, director of the institute's research initiatives and co-author of the report.

FOR women who choose to leave their jobs to raise children, returning to technical careers after a leave is harder because technology changes so quickly and skills can become rapidly outdated. Some women also leave promising jobs earlier than men because they discover that the workplaces themselves can be lonely.

Ms. Vijayashanker says she "first started to notice women were leaving the field" at her first engineering job at Synopsys, the chip design company, when the only other two women on her team took jobs that involved interacting personally with customers. It was a pattern she

recognized from college, when other women who were engineering majors chose careers in business or medicine instead of technology so they could interact more often with other people.

She says she ended up being the only woman in a department dominated by men who were born overseas and in cultures where women didn't work outside the home.

"Management didn't quite understand how I fit into the culture and team there," she says of Synopsys. Ultimately, she was laid off.

Yvette Huygen, a Synopsys spokeswoman, confirmed that Ms. Vijayashanker had been employed there, but said that per company policy, she had no further comment.

Later, when Ms. Vijayashanker joined Mint, she also wanted interaction with other people, but, she said, "the guys went into their rooms and coded all day." So she started a weekly group lunch and hired an intern so she could write programs with a partner.

WHAT makes investors smile or frown on new companies led by women? Venture capitalists uniformly say they wouldn't turn down a promising start-up simply because a woman founded it.

"The supply of women C.E.O.'s is lower than the supply of men, but to go from there to assuming there'd even be a bias? It just never happens," says Rory O'Driscoll, a managing director at Scale Venture Partners. "You're just trying to make a buck."

But research indicates that gender exerts a powerful influence on where the money goes in Silicon Valley. Venture capital firms with senior female investors are more likely to attract and close deals with women-led start-ups, concluded a Kauffman Foundation report.

That may be because data show that people are more trusting and comfortable working with people of their own sex, says Toby Stuart, a Harvard Business School professor who studies the topic.

He says that some men are reluctant to invest in women's start-ups because "there are enough things that can go wrong with a high-risk, early-stage venture that if you're worried about any interpersonal dynamic issues, why not do a deal that takes that out of the equation?"

Networks are crucial for fund-raising, because most investors don't look at pitches that come over the transom. Since an overwhelming majority of venture capitalists are men and have gotten to the firms via start-ups or business schools — both places where women are underrepresented — women have a harder time gaining access to the Valley's boys club, analysts say.

"Women tend to network with women, and men tend to network with men," says Sharon Vosmek, C.E.O. of Astia. "It plays out on the golf course, in the boardroom and it's certainly playing out in high-growth entrepreneurship."

Ms. Fleming, who recently resigned as Crimson Hexagon's chief executive because she felt she had drifted too far from the creative side of the business, is thinking of sending her 6-year-old

daughter to an after-school science club, "to break the stereotype and introduce her to the fact that math and science are fun."

Ms. Vijayashanker says she has seen more complaining than action about the dearth of women in tech, so she is outspoken about the topic. On her blog, Femgineer, she writes about "my experiences as a little femgineer in a mengineer's world," and speaks at conferences.

"If we want more women to be in tech, then we have to have a set of role models," she says.

Ms. Watts said she has become a huge fan of women's groups, like the Forum for Women Entrepreneurs and Executives. She mentors women at Stanford's business school and meets regularly with a group of female C.E.O.'s so they can remind one another that they're not alone.

For those with a bottom-line approach, analysts say it makes a difference when women are in the garages where tech start-ups are founded or the boardrooms where they are funded. Studies have found that teams with both women and men are more profitable and innovative. Mixed-gender teams have produced information technology patents that are cited 26 percent to 42 percent more often than the norm, according to the National Center for Women and Information Technology.

In a study analyzing the relationship between the composition of corporate boards and financial performance, Catalyst, a research organization on women and business, found a greater return on investment, equity and sales in I.T. companies that have directors who are women.

Silicon Valley shows signs of changing, albeit slowly. New organizations are sprouting up for young women in tech, like Girls in Tech and Women 2.0. One-quarter of the partners at Kleiner Perkins, the venture capital firm, are women, and some of the hottest start-ups — including Gilt, Hunch, Ning, Eventbrite and Meebo — were founded or co-founded by women.

They could change things for the next generation of girls aspiring to engineering careers and women already entering the field, Ms. Fleming hopes. "If their success becomes visible, so girls can identify with it, they will think, 'Oh yeah, anyone can do this,'" she says.