

Lessons Across Borders: Women's Entrepreneurship in the U.S. and China

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The Georgetown Institute for Women, Peace and Security, housed within the Georgetown University Walsh School of Foreign Service, researches how promoting women’s social and economic participation is linked to advancing sustainable peace and security. The Mulan Foundation, as initiated by Mulan Initiative, is the largest organization in China dedicated to supporting the growth and development of women’s entrepreneurship. It was founded on the idea that women make businesses better and aims to enhance female businesses’ commercial impact through collective learning, role models, and growth opportunities.

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Executive Summary

In both the United States and China, thousands of women are becoming entrepreneurs. Over the past 20 years, the number of women-owned businesses in the United States has grown 114 percent.¹ Between 2017 and 2018, women in the United States started an average of 1,821 businesses per day, and four in every ten U.S. businesses are now women owned. The number of women entrepreneurs in China is also growing. About three in ten businesses in China are women owned,² and, according to the All-China Women's Federation, women account for one-quarter of total China-based entrepreneurs as of 2017.³ Moreover, a study of technology and health-care start-ups found that 50 percent of Chinese tech companies had at least one woman on the board of directors, and 70 percent had at least one woman executive—up from 45 percent and 62 percent in 2017, respectively.⁴

The upward trends in both countries underscore the growing economic opportunities for women in the entrepreneurial ecosystem, especially in the rapidly growing technology industry. However, despite the availability of national data highlighting these trends, we know little about the patterns of opportunities and challenges faced by women entrepreneurs specifically in tech.

This report seeks to address this gap by examining the key challenges faced by female founders in tech in the United States and China. Part I investigates these trends by synthesizing and sharing insights from 330 survey respondents across both countries, comparing the opportunities and challenges faced by women tech entrepreneurs in each economy. Part II then dives deep into the U.S. perspective, analyzing the survey responses from American women entrepreneurs in the tech sector and drawing from in-depth profiles of 17 individual founders. Their diverse experiences offer lessons for other women entrepreneurs.

Our findings in both countries suggest that limited access to capital and networks are key challenges faced by female entrepreneurs in tech. In addition, gender bias and stereotypes inhibit growth opportunities for women-founded businesses. This report provides recommendations for how to support women entrepreneurs in technology, and it highlights opportunities for women founders and aspiring entrepreneurs.

PART I.

East Meets West: How Women Tech Entrepreneurs Fare in the United States and China

Introduction

In the United States and China, women founders are still a minority in tech circles and face numerous challenges, despite gains in overall participation in entrepreneurship. This is also true globally: the 2016/2017 Global Entrepreneurship Monitor reports in 74 countries, fewer than 2 percent of women entrepreneurs are starting information and communications technology (ICT) businesses, compared to 25 percent of male entrepreneurs.⁵

In the United States, 90 percent of all women-owned businesses are sole proprietorships, meaning only 10 percent are hiring employees.⁶ Attracting and budgeting for additional employees is a significant obstacle to growth for such businesses. Market saturation in women-dominated industries also makes it more difficult for

Above all, women founders in both the United States and China struggle to attract the financial resources necessary to grow their start-ups, despite evidence that female-founded companies often outperform companies with all-male founding teams.

women entrepreneurs to stand out against the competition.⁷ In China, familial expectations and official government campaigns create significant pressure on women to be married by age 27 and for mothers to leave their careers to raise children at home.⁸ Above all, women founders in both the United States and China struggle to attract the financial resources

necessary to grow their start-ups, despite evidence that female-founded companies often outperform companies with all-male founding teams.⁹ In 2018, venture capital (VC) firms invested a total of \$130 billion in U.S. companies, yet the share invested in companies founded by women was just 2.2 percent.¹⁰

This report addresses several important questions about the environment for women entrepreneurs in both the United States and China: What obstacles do Chinese and American women face when establishing a business in the technology industry? How do social and cultural factors impact women founders in both countries? How can we create a supportive environment for women tech entrepreneurs?

This report also presents a snapshot of the opportunities and challenges facing a select group of Chinese and American women entrepreneurs in the tech industry who participated in the online survey and in-depth interviews. While the results are not statistically representative of women entrepreneurs' experiences as a whole, the authors hope the experiences shared by this group of women will offer useful insights into the start-up ecosystems in the United States and China.

In light of the global COVID-19 pandemic, which has taken a severe social and economic toll on both the United States and China in 2020, the authors acknowledge

that the business environment has changed since the survey and interview data was originally collected in 2019. The findings and analysis, therefore, do not account for new business-related challenges facing women tech entrepreneurs in the context of the recent global crisis.

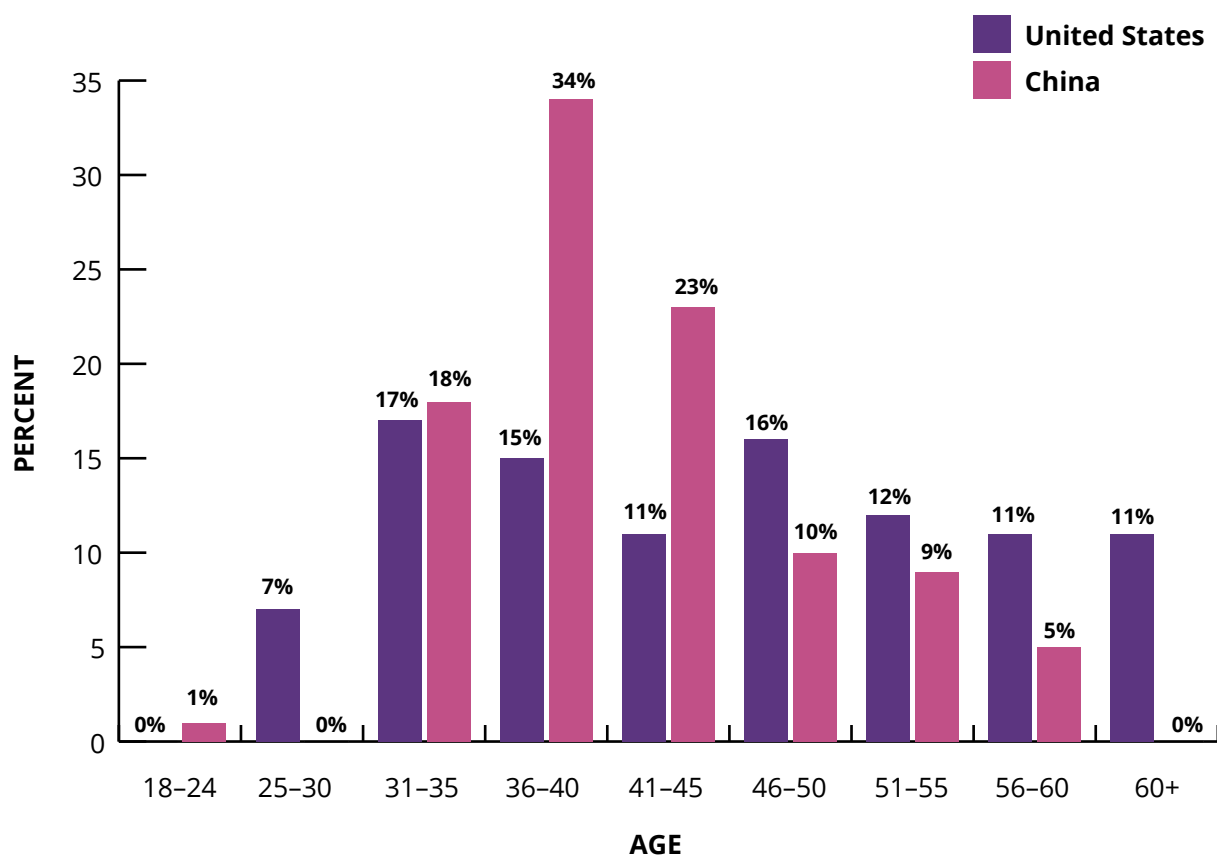
Methodology

The data used in this report was collected before the onset of the global economic downturn caused by the 2020 COVID-19 pandemic. Data collection was carried out between January and May 2019 through an online survey and in-depth interviews. The authors collected 330 randomly sampled online survey responses from women entrepreneurs: 254 from China and 76 from the United States. A total of thirty in-depth, semi-structured interviews were conducted by phone or in person.

In the survey, the authors asked about challenges women entrepreneurs faced when starting and scaling their business, with a focus on access to finance, mentors, and government initiatives. Among women who responded to the survey:

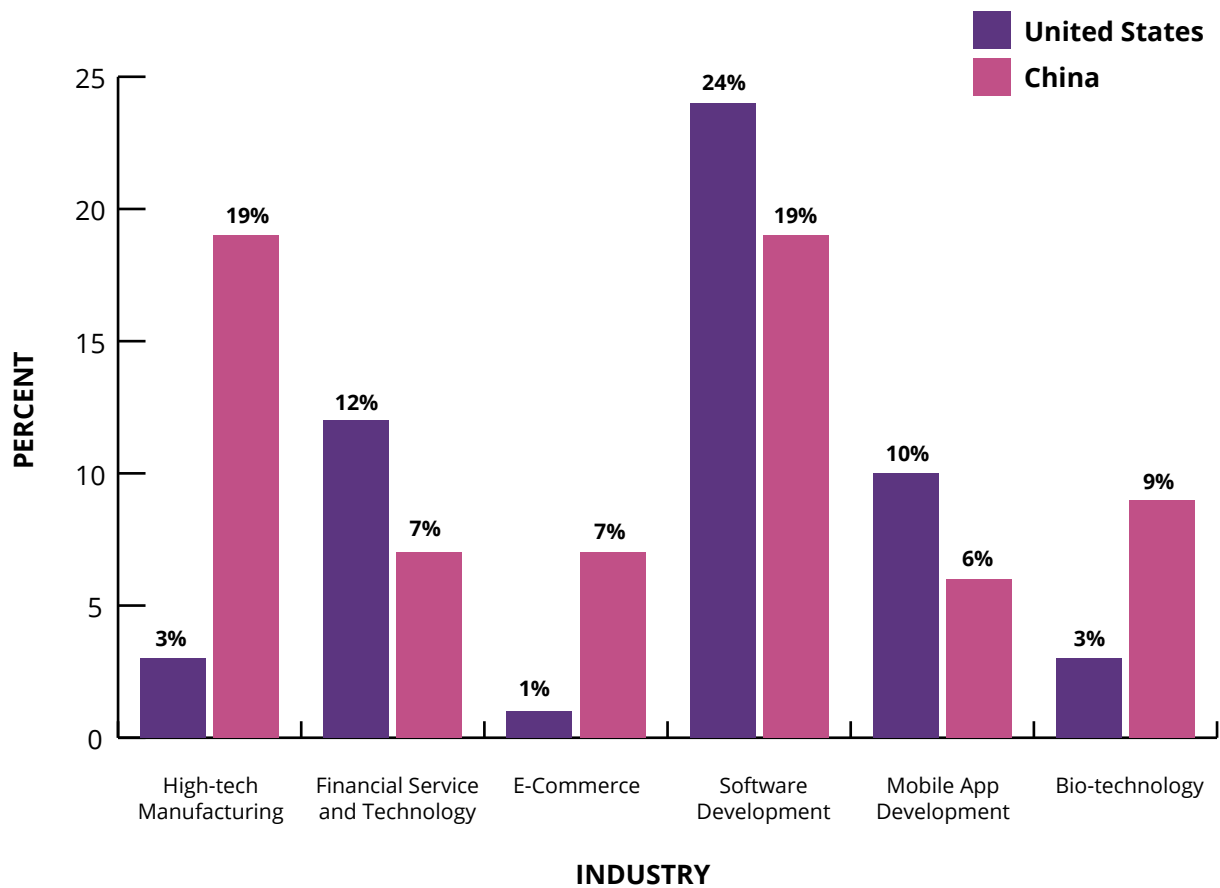
- Fifty-two percent of all respondents were between the ages of 31 and 40 (see Figure 1).
- Thirty-four percent of American respondents were over the age of 50, compared to just 14 percent of Chinese respondents.

Figure 1: Age distribution of survey respondents



- Thirty-four percent of American entrepreneurs surveyed had been operating their company for more than ten years, while 45 percent of Chinese women entrepreneurs had been in business for two to five years.
- Respondents from the United States were mostly concentrated in the software development industry, while respondents from China were mostly concentrated in software development and high-tech manufacturing.
- For U.S. respondents, companies with ten to 19 employees have an average revenue between \$2 million and \$20 million, and between \$4 million and \$40 million for companies with 20 to 99 employees. The average annual revenues of Chinese respondents' companies of the same size are \$400,000 to \$4 million, and \$2 million to \$20 million, respectively.

Figure 2: Industry distribution of survey respondents



For in-depth interviews, the 30 interviewees—15 from each country—were selected using purposive sampling. In the United States, the authors relied on recommendations from partner organizations that work directly with women entrepreneurs. In China, interviewees were selected from the Mulan Initiative’s network of women entrepreneurs. To capture a diverse range of experience, the selection criteria for interviewees took into account factors such as industry, company size, and number of years the business has been in operation. Among women who were interviewed, more than half of the U.S. founders were between the ages of 41 and 60, whereas over three-quarters of Chinese women founders were between the ages of 31 and 45.

The authors asked the interviewees about social norms, the business environment for women entrepreneurs in their country, the obstacles they faced when establishing and scaling their businesses, and the ease of access to mentors or incubators.

Although the interviews and survey are not statistically representative because of their limited sample size, the findings below highlight some recurring themes, many of which confirm the existing evidence of the challenges and opportunities women entrepreneurs face in starting and scaling their businesses.

Comparative findings

Access to capital is a key challenge for U.S. and Chinese women entrepreneurs

Among U.S. and Chinese survey respondents, access to capital was identified as a top challenge during both the start-up and growth phases of a business. Seventy percent of U.S. survey respondents reported that “applying for loans” or “obtaining funds from angel or seed investors” were among the top three challenges they faced when launching their business. Respondents from China also named applying for loans and securing funds as significant obstacles in this phase, behind accessing “market and customer channels” and “difficulty in finding business partners and hiring employees.”

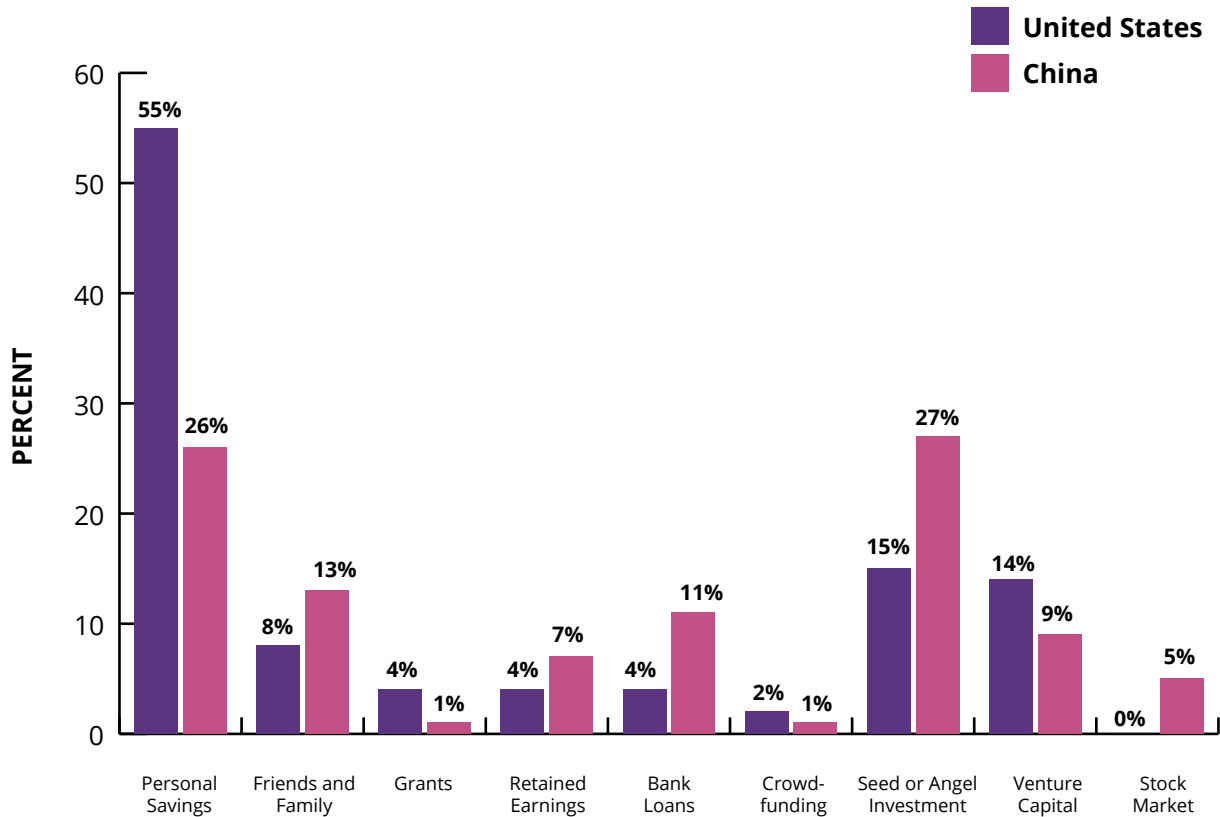
Personal savings is a primary source of funding when starting a business

The survey results suggest that women entrepreneurs in the United States and China rely on different sources of financing when starting their business. More than half of U.S. survey respondents funded their start-ups through personal savings (see Figure 3). In China, about one-quarter (27 percent) of respondents primarily relied on capital from angel and seed investors, with another quarter relying on personal savings. Anecdotal evidence suggests funding approaches in the two countries differ because the allocation of venture capital in China has become relatively more meritocratic, as VC firms have appointed more women to investing partner positions and large women-led funds have become mainstream.¹¹ Emerging research in the United States suggests women entrepreneurs there are also turning to firms that exclusively fund women-led start-ups, including BBG Ventures, Golden Seeds, or the Women’s Venture Capital Fund. Other U.S. women entrepreneurs have relied on crowdfunding sites such as IFundWomen.

Women tech entrepreneurs in China report greater access to venture capital

When scaling their businesses, U.S. women entrepreneurs relied on savings, retained earnings, and bank loans (see Figure 4). For Chinese women’s technology companies, the top three sources of funding were venture capital, friends and family, and bank loans. In line with the literature, the survey results showed that venture capital is an uncommon source of funding for U.S. women tech entrepreneurs, as only 9 percent of respondents listed it as a main source, compared to 18 percent in China. In the United States, women-only founding teams raised just 3 percent of all VC funding in the first three quarters of 2019, compared to 10 percent for mixed-gender founding teams and 87 percent for male-only teams.¹² In addition,

Figure 3: Sources of funding during the initial start-up phase



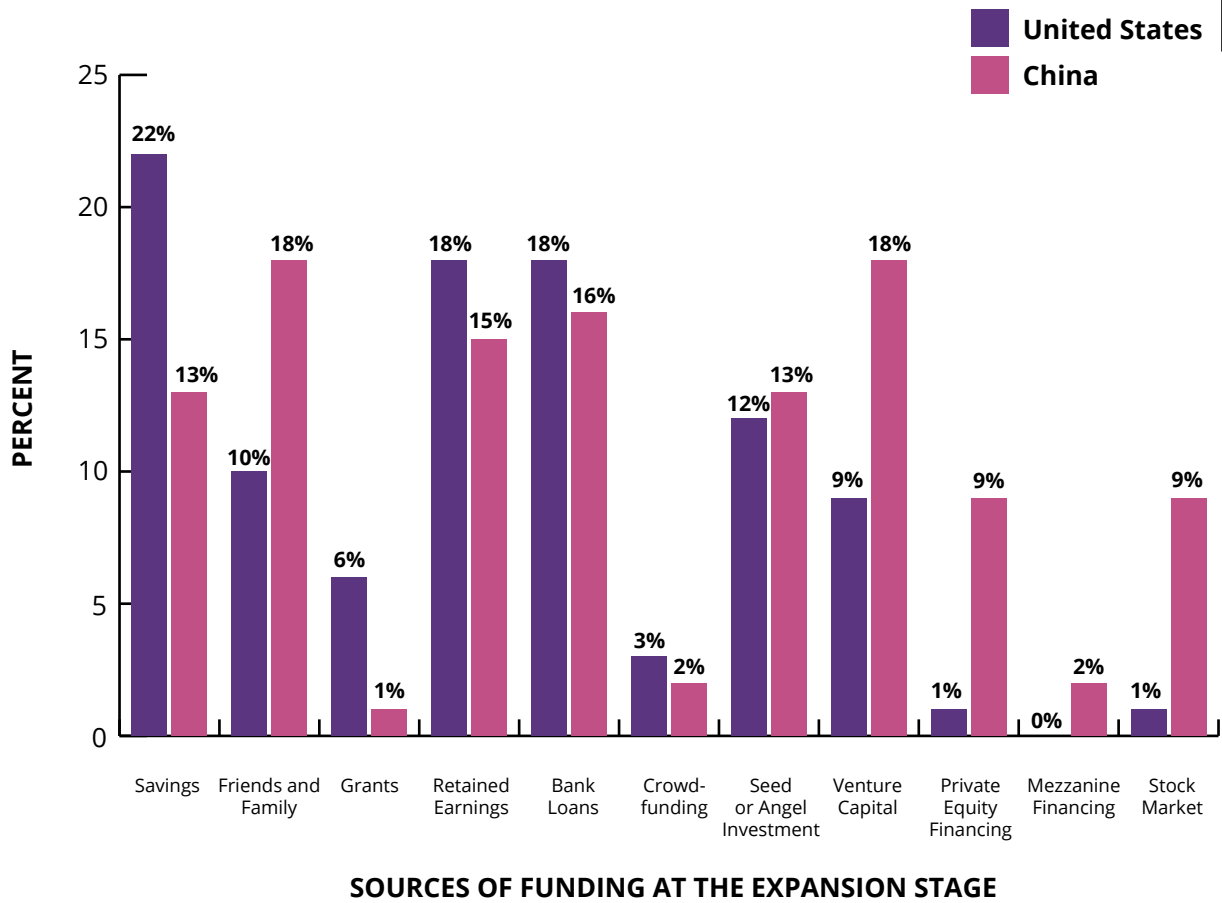
SOURCES OF FUNDING AT THE INITIAL STAGE

9 percent of Chinese respondents reported pursuing private-equity financing, as opposed to 1 percent of respondents in the United States. The survey data suggests that Chinese women entrepreneurs have access to more diverse sources of funding than their American counterparts.

Recruiting talent is a challenge for both U.S. and Chinese women tech entrepreneurs

American survey respondents cited difficulties in hiring and retaining skilled employees as an obstacle to growth. In their open-ended survey responses, the American respondents suggested that high salary costs and competition for talent make it difficult for start-ups to afford the best people. Chinese women entrepreneurs face similar challenges in hiring and retention. The open-ended survey responses suggest it is common for companies to offer generous incentives to attract top talent in a competitive market. Among the woman-led technology companies surveyed in China, 48 percent provided equity incentives, and most female tech entrepreneurs chose to provide between 5 and 10 percent compensation in the form of equity incentives.

Figure 4: Sources of funding during the expansion phase



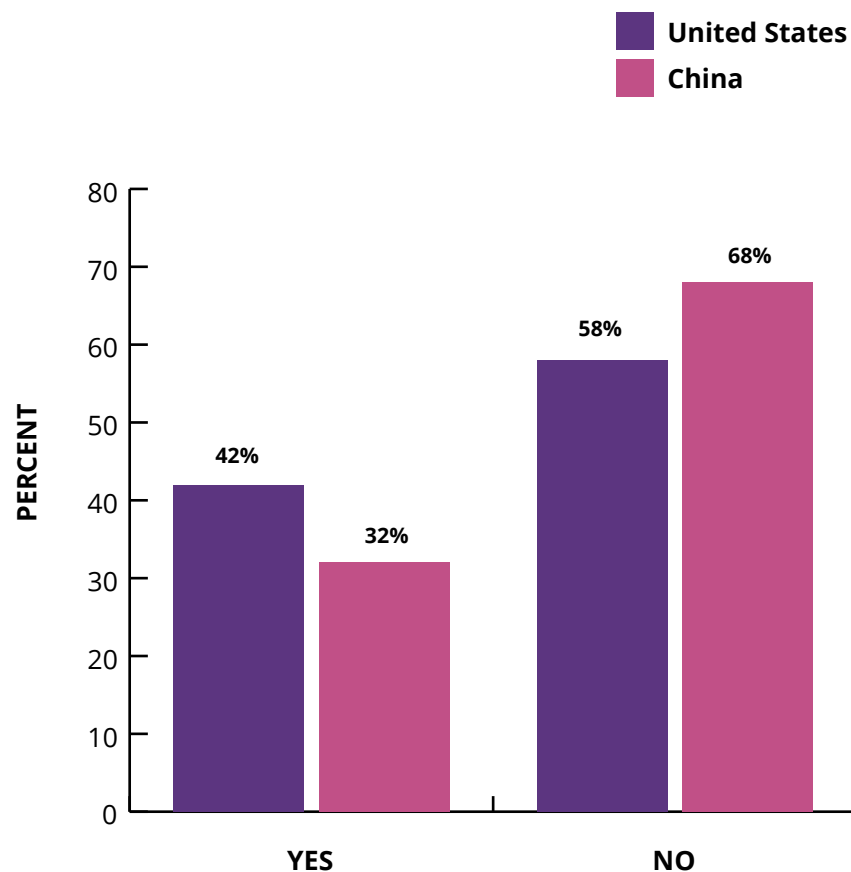
A smaller proportion of Chinese women tech entrepreneurs have mentors

42 percent of U.S. respondents said they had a mentor when they first started their business (see Figure 5). Of those who had one, they credited their mentor as a useful resource in addressing market challenges and expanding their customer base. In China, even fewer women entrepreneurs reported having a mentor—just 32 percent. Many Chinese women entrepreneurs ranked accessing new markets and customer channels as their top obstacle to expansion, and they have relied on word of mouth, branding, and marketing to gain new customers. From the experiences shared by U.S. women founders, Chinese entrepreneurs may find it useful to have access to and support from mentors when building connections and tackling growth challenges.

Improving government initiatives in both countries can foster an enabling entrepreneurial environment for women tech founders

About 40 percent of respondents from China reported that their company benefits from government initiatives, compared with 20 percent of American respondents (see Figure 6).

Figure 5: Percent of respondents who report having access to mentors and networks

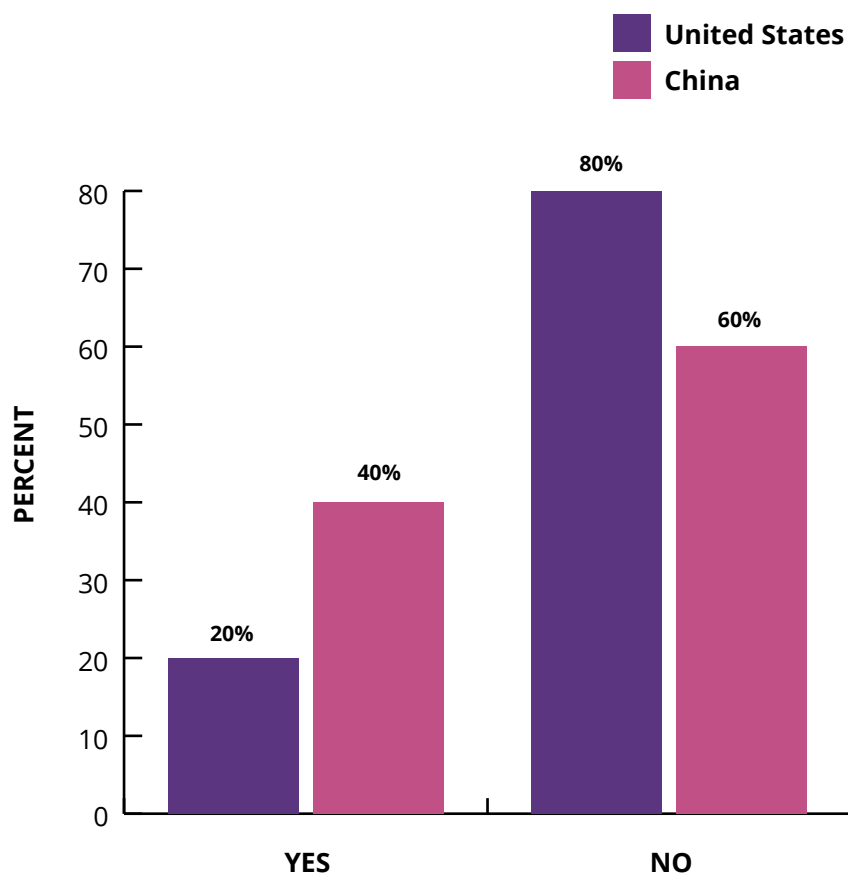


To promote innovation and entrepreneurship in China, the Chinese government offers technology companies low corporate income-tax rates, reduces red tape, and provides financial support to encourage innovative research and development. Since the launch of these measures, China has established 1,600 high-tech incubators for start-ups.¹³ In particular, Chinese survey respondents shared that “tax reduction,” the Chinese government’s Thousand Talents academic recruitment program, and other business-friendly policies have supported the growth of their businesses.

Women founders in the United States benefit from government initiatives, such as the women-owned small business (WOSB) certification and other services from the Small Business Administration, which provides financial grants, mentoring, and entrepreneurship training programs. However, some women respondents believe that there is no proper tracking or accountability mechanism to verify that spending has been allocated to women.

On the other hand, the United States (ranked first) outperformed China (ranked 30th) on the 2019 MasterCard Index of Women Entrepreneurs (MIWE), which measures how advantageous a country’s support system is for women entrepreneurs who own small and medium-size businesses.¹⁴ The MIWE found that although men and women in China have equal access to financial services by law and custom,

Figure 6: Percent of respondents who report receiving support from government institutions or policies



availability of financial outreach programs for women and access to business loans are relatively poor.¹⁵ Clearly, more can be done in both countries.

While women entrepreneurs in both the U.S. and Chinese tech industries continue to face financial and cultural barriers to success, the entrepreneurial environment in both countries shows signs of becoming more woman friendly. The survey suggests that U.S. respondents' access to meaningful mentorship opportunities and the ability to partially self-fund their start-ups in the initial growth phase helped them succeed, despite barriers to the 'men's club' of VC funding. Though the respondents from China reported receiving less mentorship and experienced greater difficulty accessing markets and consumer channels, robust investment from the Chinese government and private companies has created more formal support than is available in the United States. The authors hope that the survey results, while not conclusive, will inform future research on the situation of women entrepreneurs in the United States and China and how these environments evolve during the COVID-19 era and beyond.

PART II.

Women Entrepreneurs: Starting and Scaling Technology Businesses in the United States

Introduction

Female entrepreneurship is on an upward trend globally, as well as in the United States. Between 2007 and 2018, the share of women-owned businesses across all sectors increased from 29 to 40 percent.¹⁶ Thousands of women are becoming entrepreneurs: between 2017 and 2018, women in the United States started an average of 1,821 businesses per day.¹⁷ According to the *2018 State of Women-Owned Businesses Report*, which provides projections based on data from the U.S. Census Bureau's survey of business owners, nearly half of all businesses in the United States are women-owned or jointly owned by men and women.¹⁸

However, women-owned businesses in the United States tend to be smaller in size and receive less funding. Women-owned firms account for 8 percent of total employment and 4 percent of total revenues.¹⁹ Data from Crunchbase, an open data set for the start-up community, showed that in 2018 technology start-ups with at least one female founder received venture capital funding of about \$39 billion, almost double the amount invested in 2017 (\$20 billion).²⁰ However, this still stands in contrast to the large amount—\$188 billion—invested in male-founded technology start-ups in 2018.

Underrepresentation of women start-up founders in the technology industry persists. Some key facts include:

- In the United States, only 3 percent of women consider their business to be in technology, compared to 8 percent of men.²¹ In 2017, Crunchbase reported that only 17 percent of U.S.-based tech start-ups had a female founder—a proportion that has remained stagnant since 2012.²²
- Across the technology sector, a significantly smaller share of women occupy senior management or ownership positions. Among Silicon Valley's top 150 companies, for example, women account for only 11 percent of executives.²³

What we know about entrepreneurship in the United States

Lack of women in the technology industry remains a challenge. Women continue to be underrepresented in the sector as employees, in leadership, and as entrepreneurs. According to the most recent available data, women account for about a quarter of employees²⁴ and one-tenth of executives in Silicon Valley companies.²⁵ Female attrition rate is also higher in technology than it is in science and engineering and in non-STEM (science, technology, engineering, and mathematics) fields.²⁶

There are 16 times as many male-founded start-ups as there are female-founded start-ups.²⁷

Studies suggest that American women entrepreneurs face larger barriers compared to their male counterparts, including financial constraints, a lack of access to mentors and diverse networks, and broader gender bias, cultural stereotypes, and restrictive social norms. These factors often operate together to limit women's growth potential or to deter women from pursuing entrepreneurial endeavors altogether.

Financial constraints

In the United States, women business owners have reported that conditions for accessing capital have improved over the last decade. However, they still perceive themselves to be at a disadvantage compared to their male peers.²⁸ Limited access to external financing and capital can hinder women entrepreneurs' growth potential,²⁹ as they may be forced to relocate to lower-cost areas with fewer new markets and customers.³⁰ Here we review evidence about the financial constraints for women entrepreneurs generally, as data specifically for the tech industry is scarce.

Women tend to have fewer assets, in part because their lower earnings mean that they accumulate less personal wealth than men. Studies suggest the majority of female entrepreneurs establish their businesses between ages 45 and 54.³¹

Women are also less likely to seek external sources of financing, because they are more risk averse and less willing to cede control of their companies.³² They establish businesses with, on average, half the amount of capital as men and are more reliant on personal savings and credit card debt.³³

Women tend to have fewer assets, in part because their lower earnings mean that they accumulate less personal wealth than men.

Women entrepreneurs receive a relatively small share of business-related loans. For example, a 2014 report estimated women receive just 16 percent of all conventional small business loans and only about 4 percent of the total dollar amount.³⁴ In 2016, another study by Fundera, an online small business loan aggregator, found that woman entrepreneurs receive smaller and fewer loans, at higher interest rates, compared to men.³⁵ The study found that only one in four applicants were women, with an average gap of \$35,000 in loan amount requested. Women paid, on average, 5 percentage points more in interest on short-term loans.³⁶

Only a small share of VC funding goes to women entrepreneurs. According to a 2016 study, male-only teams are four times more likely to receive venture funding than female-only teams.³⁷ Between 2011 and 2013, 97 percent of total VC funding went to companies with a male CEO.³⁸ During the same period, 86 percent of all VC-funded businesses had no women in management positions.³⁹ In recent years, it appears there has been little improvement. In early 2019, about 17 percent of venture capital was invested in companies with at least one female founder.⁴⁰ Only 2 percent of VC funding was invested in companies with only women founders, compared to 83 percent that went to male founders.

Fundamental gender biases may place women at a disadvantage in accessing capital. A study found that both professional investors and nonprofessional evaluators

(men and women) preferred pitches by male entrepreneurs, particularly attractive men, even when the content of the pitch was very similar.⁴¹ Women entrepreneurs also have a harder time raising venture capital for businesses considered gender neutral. A study that looked at 13,000 start-ups over five years found that women who fundraised for businesses in gender-neutral categories received 53 percent less funding than those who ran women-focused businesses.⁴²

The barriers in accessing loans and VC funding can lead women entrepreneurs to rely more on alternative sources of financing, including peer-to-peer lending and crowdfunding.⁴³ Recent research shows that women entrepreneurs may be more successful on crowdfunding platforms such as Kickstarter, where teams of two women raising more than mixed or single male-led teams.⁴⁴

Lack of access to mentors and diverse networks

Mentors and role models provide critical support to entrepreneurs, helping to develop leadership skills, confidence, and networks.⁴⁵ Researchers Agnieszka Kwapisz and Diana M. Hechavarría have found that the presence of “start-up helpers” (external sources of support with no ownership share in the company) significantly increases the likelihood of women seeking external sources of financing in the early stages of their business.⁴⁶ Mentors can also introduce new entrepreneurs to diverse networks, which are crucial for accessing funding, information, and further business opportunities.⁴⁷

Research suggests women entrepreneurs have smaller social networks than men and often rely on personal networks (such as spouses and friends) instead of professional relationships.⁴⁸ As a result, women may have fewer opportunities to connect with new clients and have limited access to entrepreneurial and managerial knowledge.⁴⁹

Incubators and accelerators can help expand and diversity women entrepreneurs’ networks while providing valuable educational opportunities.

Incubators and accelerators can help expand and diversify women entrepreneurs’ networks while providing valuable educational opportunities.⁵⁰ However, studies show that women entrepreneurs do not participate in these activities as often as men. Anecdotal evidence suggests there are fewer women managers in accelerators, and the one-size-fits-all model of accelerator programs fails to meet the specific needs of women entrepreneurs.⁵¹ Biases in the recruitment and selection process may prevent women from accessing high-tech incubators and accelerators,⁵² while program design and culture may also discourage them from participating.⁵³

To address the underrepresentation of women in these entrepreneurial networks, a number of women-only entrepreneurship groups and formal networks have developed. However, economists Maura McAdam, Richard T. Harrison, and Claire M. Leitch have argued that such networks are problematic, as women themselves tend to view them as “sisterhood” support groups and as stepping stones to mixed networks.⁵⁴ These networks also tend to reinforce existing gendered stereotypes, whereby certain women—who regard such networks as strategic to developing their business—may appear to be unpopular and ruthless.

Social norms and the institutional environment

It is well known that gender norms can create additional barriers that make it more difficult for women to establish and grow a business.⁵⁵ Studies have shown that entrepreneurship is typically associated with masculine characteristics, and this works against women entrepreneurs who are seen as violating stereotypes about feminine behavior.⁵⁶ Women's businesses are viewed as less credible and as less attractive investments.⁵⁷ Men are also more than twice as likely as women to believe they have the knowledge, skills, and experience to be entrepreneurs.⁵⁸

The United States is recognized as having a favorable business environment for women: according to *The 2015 Female Entrepreneurship Index*, the United States ranks first out of 77 countries in having a supportive environment for high-potential female entrepreneurs, with a score of 82.9 out of 100.⁵⁹ However, there is still room for improvement, including the provision of subsidized childcare services and parental leave and changes in broader social norms to support women as entrepreneurs.⁶⁰ The United States is the only industrialized country that does not mandate paid maternity leave, and, according to the U.S. Bureau of Statistics, only 12 percent of workers have paid family leave.⁶¹ A study found that when there are fewer family-friendly work policies, women are more likely to view entrepreneurship as a fallback strategy to balancing work and family demands, rather than as an opportunity for success.⁶²

Government procurement accounts for about one-tenth of U.S. gross domestic product and is therefore an important part of the entrepreneurial ecosystem.⁶³ The U.S. federal government has established certification and procurement policies, such as the WOSB Federal Contracting Program, aimed at helping women-owned businesses compete for federal contracts. However, some researchers have called into question the efficacy of existing federal policies. Research suggests that certification as a women-owned business does not affect the bid frequency and or success rate in winning contracts.⁶⁴ Certification may also have unintended negative consequences: firms may be perceived by federal contracting officers either as deficient or, on the flip side, as receiving preferential status.⁶⁵

Overall, there is ample literature exploring the barriers that hinder women entrepreneurs, but less on the industry-specific challenges women in technology face. Although female tech founders face similar challenges in accessing finance, mentors, and networks and in combating gender bias, there are several challenges that affect them more specifically, given tech's traditionally male-dominated environment. For instance, the very fact that there are fewer women in the field as entrepreneurs and investors contributes to the stereotype that tech is a male-only endeavor.⁶⁶ Women in tech—as in other industries—also feel excluded from informal networking opportunities (for example, golf weekends or late-night drinks),⁶⁷ which reduces their ability to find mentors and build networks.

Methodology

The findings presented here draw on data collected from January to July 2019. The data includes an online survey of 74 women entrepreneurs in technology and in-depth interviews with 17 women CEOs and founders of technology companies

(16 of whom are profiled in Appendix I). The survey was distributed online through organizations that work with women entrepreneurs, such as—but not limited to—women’s business councils and centers, investing funds and financing institutions, and accelerators. In the survey, we asked about the challenges the entrepreneurs faced when starting and scaling their business, focusing on access to finance, mentors, and government initiatives. Some highlights from the survey:

- Almost half of the women entrepreneurs were above 46 years old.
- More than half of survey respondents (38 women) had companies that have been in business for more than five years.
- Companies ranged in annual net revenues from \$1,000 to more than \$10 million. The majority of companies (35) had annual net revenues of at least \$1 million.
- More than half of survey respondents (39 women) employed between one and 19 employees.
- Survey respondents were from 18 different states. One-quarter of respondents had a company based in Delaware.
- There was a diverse range of fields represented, including biotechnology, e-commerce, financial services, high-tech manufacturing, software development, and mobile application development.

For the in-depth interviews, we engaged in purposive sampling and identified interviewees based on recommendations from partner organizations who work directly with women entrepreneurs. The interviews were intended to capture a diverse range of opinions from a broad spectrum of women entrepreneurs in technology. They represent the experience of women founders at the helm of emerging start-ups and at companies that have been in existence for more than ten years. For the interviews, we asked about social norms and the environment for women entrepreneurs in tech, challenges they faced when starting and scaling their business, and access to mentors. The demographics of our interviewees are as follows:

- They ranged from age 25 to over 60, with more than half of interviewees between the ages of 41 and 60.
- Most had companies that were generating more than \$10 million in annual revenue and had been operating for more than five years.
- They had established companies in nine different states and the District of Columbia, namely California, Delaware, Georgia, Illinois, Maryland, Massachusetts, New York, North Carolina, and Texas.

Challenges and opportunities

Our results from both the quantitative and qualitative data collection confirm the existing findings in the literature, underlining the importance of negative gender stereotypes and limited access to capital and networks.

Figure 7 highlights the concerns shared by women interviewees. The most frequently used words during the interviews include *government*, *capital*, *funding*,

Bank loans and debt-financing

Many women described difficulties in qualifying for bank loans in the early stages of their business. Some of the challenges raised by survey respondents include managing banks' low tolerance for risk and having to convince bankers of the opportunities behind emerging technology. A number of women entrepreneurs also mentioned having to overcome "the stereotype of a tech founder," working to "gain the respect" of the bank, or "getting the bank to take *her* seriously." The lack of collateral associated with a nascent tech company also made it difficult to qualify for a loan. Cyndi Masters, CEO and founder of DBS Interactive, explained that there is a "chicken and the egg" dilemma, as banks "are only interested in giving you money when you have money," and "growing a business takes capital." As the founder of a start-up company, another woman noted that she had no "inventory or other company assets to pledge" and therefore had to "personally guarantee all loans with private assets."

Christina Seelye, the CEO and founder of Maximum Games, described how her company had to demonstrate profitability before she was able to secure a bank loan. This meant bootstrapping for the first three years of business. "A lot of it was because, being in software and technology, we didn't have the balance-sheet assets that banks can loan against," Seelye said. She described securing debt financing as one of the "core barriers women in technology face as founders."

Joyce Durst, cofounder and CEO of Growth Acceleration Partners, argued that banks continue to apply the same credit rules for women-owned businesses, even though these businesses have different financial outcomes than their male counterparts. She described the process of applying for a bank loan as akin to applying for car insurance, where "they give me a rate as if I was a 17 year old boy driving a Mustang, which does not seem fair because I am not, and I am less likely to wreck the car."

Alternative financing sources

Women also cited accessing capital from angel and seed investors as a common challenge. An entrepreneur confided that fundraising was "pitching to all old white men," which was "daunting for a 49-year-old single woman." In her experience, the offer terms were "borderline predatory." Over half of survey respondents (approximately 63 percent) relied on personal savings or borrowed from family and friends as their primary source of initial funding, while 15 percent used seed or angel funds. Only 4 percent of women cited venture capital as their primary funding source. Joyce Durst shared that her driving reason behind bootstrapping was to allow her to focus on "getting great clients and providing value to the customers." She felt confident in her business plan and did not "want to be distracted spending all her time and energy on fundraising." However, the downside is "you grow more slowly."

Other respondents highlighted the challenge of fundraising from predominantly male investors. One woman noted, "If you're not a rich white dude, finding other rich white dudes to fund you is hard." Another woman confided that, if she was "being honest," fundraising was very "demoralizing." She explained that it sometimes felt like male venture capitalists "want to cripple your spirit to drive down the valuation." Gentry Lane, CEO of ANOVA Intelligence, found "fundraising difficult because of the lack of social opportunities." She elaborated that "it wouldn't be appropriate as a single woman to go on ski trips," and sometimes "even dinners may feel awkward."

2. A lack of access to mentors and networks is a major challenge in the post-start-up phase, especially when it comes to expanding customer markets and hiring talent

Accessing new markets and customers, as well as hiring and retaining employees, were also cited as a key challenge by survey respondents. Findings from our survey and interviews indicate that mentors and access to networks can help address these obstacles.

Accessing new markets and customers

Difficulty accessing markets and customers was cited as the number-one challenge by one-third of survey respondents. A survey respondent shared that it was difficult “finding customers who *were* willing to take a chance” on a start-up with “little financial stability and funds for marketing.” She had to rely solely on her “personal networks to get the first few customers.” Existing literature shows that this challenge of accessing markets and customers may be related to and constrained by women’s more limited networks. As one respondent noted, “Starting fresh” and establishing a business “means a blank slate—and business is who you know.”

Other barriers to reaching new customers cited by survey respondents included the “ever changing IT [information technology] environment” and difficulty in deciding which market segments to concentrate on.

Women who were successful in scaling their businesses said access to mentors and diverse networks was key. Phyllis Newhouse, founder and CEO of Xtreme Solutions, Inc., recounted how, after the first 18 months of rapid company growth, she faced many unfamiliar “roadblocks,” including systems failures and new process technologies. Soon after, Newhouse was introduced to a more established female entrepreneur in her field who became her mentor. This mentorship, Newhouse said, helped Xtreme Solutions almost double its revenue in the following year. For any woman looking to grow her business, Newhouse recommended seeking out a “mentor at the next level—not one where you are, but one where you are trying to go.”

Only 42 percent of survey respondents said they had a mentor when starting their business, supporting the claim in existing literature that women have access to mentors. Among women who did have a mentor when starting, these mentors (whether were male or female) were credited with helping them think through critical growth decisions, facilitating connections with new clients, and providing practical help on human resources or legal questions. On whether the gender of a mentor matters, a number of women entrepreneurs, including Doris Yeh, cofounder and CEO of Mirapath, argued that it does not. Yeh described the process of looking for a mentor as finding “someone who knows you and really wants you to succeed, and that can be a man or a woman.”

Yeh shared her positive experience of networking with other female C-suite executives. She noted that knowing how other CEOs have faced the same issues and the way they addressed the challenges has helped her to become a better manager at her company. Prior to joining the Women Presidents’ Organization (WPO), Yeh had felt “very lonely,” and it was comforting knowing other women founders “are just like me.” She added that networks are important to learn from the mistakes of others: “They walk through how not to make the mistake or how to get out of the mistake faster, and sharing those experiences is actually invaluable.”

Three-quarters of survey respondents were currently engaged as mentors to other women entrepreneurs. In addition, more than half of respondents also cited having access to and support from mentors as critical to helping women entrepreneurs grow their businesses. Many women founders formally mentor other entrepreneurs through various organizations, such as the Women's Business Enterprise National Council (WBENC), the Vinetta Project, Women Who Tech, Rewriting the Code, CERESA, Chicago Innovation Women's Mentoring Co-op, National Association of Women Business Owners, C200, Springboard, and WPO. A number of women entrepreneurs also informally coach others through their own networks, helping to make connections and acting as sounding boards.

Difficulty hiring employees

Women cited difficulty hiring and retaining skilled employees as an obstacle to growth. Although this is not a barrier unique to women entrepreneurs, it signals a challenge that looms large for the technology industry. Smaller start-ups can have trouble competing with big-name tech companies. As one respondent noted, it is "always tough to attract talent without the top salaries in an industry." Another respondent reaffirmed the difficulty behind recruiting, noting that hiring the best talent as a start-up in Silicon Valley means "we are up against the best companies in the world." With limited profitability in the early years, it was difficult to afford the talent needed.

Retaining talent is also a challenge: one survey respondent recounted the frustrating process of hiring and training new employees, only to have them recruited away by big-name tech companies. Furthermore, in niche industries such as cybersecurity, young professionals prefer to work as freelance consultants, which offers higher hourly wages and greater flexibility.

Despite the challenges of hiring employees, a number of respondents highlighted the value of bringing on the right people and building a respectful team culture. Kelly Ireland, founder and CEO of CB Technologies, described it as a "win-win process," hiring people "based on character, and not on capability."

3. Many women face self-doubt and gender-biased perceptions of their abilities as entrepreneurs

Many women (about one-quarter of respondents) described low self-confidence, particularly in the start-up phase of their businesses. Different survey respondents said they doubted their "ability to run a business," "constantly questioned" themselves, or simply "did not think my company would interest investors at the time." They also faced gender-biased perceptions from society. Funders would question the credibility of their business model, and they would have to convince both funders and customers that they "were worthy of investment and opportunity."

Self-perception and lack of confidence

Akorbi CEO and cofounder Claudia Mirza noted that these common feelings of self-doubt among women entrepreneurs can hinder them from taking financial risks—which, ultimately, are key to growing a business. While men may feel more freedom to be creative, experiment, and "play with money," she said, women entrepreneurs are more concerned with "rolling up their sleeves" and getting the work done. Kathryn Petralia, cofounder and president of Kabbage, similarly noted that women "are a little less comfortable taking risks they aren't 100 percent sure they

can manage”—something that men “do all the time.” Petralia said women entrepreneurs are “less comfortable exaggerating their capabilities” and are less likely to “exude confidence in something where they don’t have direct experience.” Founder of ClickMedix Ting Shih said that because funders are “used to men exaggerating,” and women founders often represent themselves as less than what they are, funders are always “discounting” the credibility of a female founder’s product or service.

External biases

Several women entrepreneurs said they felt their abilities were underestimated or dismissed because of their gender, particularly when seeking access to finance. In practice, however, it might be challenging to discern, as “nobody ever says to you, ‘I’m not considering you for this because you are woman.’” Yet there are moments where such biases appear more obviously. As one respondent noted, the biggest challenge she faces is “simply being overlooked or not taken seriously by some,” and, in such cases, she chooses to send out her male cofounders in her place. Christina Seelye said she perceives a strong “luck bias” toward thriving female entrepreneurs. For example, when Seelye describes her company’s impressive growth trajectory, investors attribute this to her “luck in being able to take advantage of the growth of the video game industry,” rather than her own entrepreneurial skills and business savvy.

Ting Shih shared that funders often assumed she was not the founder of her company, because she is a solo young female entrepreneur and perceived to be “not as technically savvy.” She experienced communication barriers and joked how it was strange that in meetings “people might not look at me when they’re talking back. Instead, they’d look at my other colleagues, either an older female or a male.”

Tana Greene, CEO of Greene Group, recounted how, in the early stages of her career, she was hesitant to be an outspoken leader, lest she be viewed as too pushy or bossy. Christina Seelye described a similar double standard in how male and female ambition are perceived. “With women who have a really aggressive [business] plan,” Seelye said, “[funders] look at that as reckless. Versus when a man has an aggressive plan, they’ll look at it as ambitious.”

The way forward

With the growing number of women entrepreneurs and increasing representation of women in technology businesses, it is important to understand the challenges facing women founders in this rapidly growing industry. As an interviewee aptly put it, being an entrepreneur is challenging in itself—let alone being a woman or a person of color, where “it ends up being a never-ending climb up a mountain that has no peak.”

Most survey respondents said increased credit would have the greatest impact in helping women entrepreneurs. As one noted, the key is “supporting female entrepreneurs with funds—whether that takes the form of grants, angel investors, or possibly loans.” Women also cited access to networks and mentors as critical to success and growth. An interviewee distinguished the difference between two types of mentors—“coaches and champions”—and the importance of having both.

She explained that a coach is someone who “looks at your deck and gives you feedback,” versus a champion, who “looks at your deck and can introduce you to people who might be able to write you a check.” These networks and mentorships can exist formally—through groups like C200, WPO, or Vistage—or informally. Such networks of both male and female entrepreneurs can act as a “free board of advisors” that helps think through critical business decisions and how to overcome obstacles to growth.

Respondents also suggested the potential importance of incubators, accelerators, and training opportunities. One survey respondent said, “It would be helpful to have more no- or low-cost accelerators (which would require creativity and innovation)—perhaps bartering, skill-set/knowledge exchange to fund participation.” Other women noted that it would be helpful for accelerators to target more established businesses to help with “the non-start-up phase of companies,” particularly related to growth challenges.

It was interesting to note that a relatively small proportion of survey respondents benefited from government initiatives. Among those who did, the most commonly mentioned services included applying for WOSB certification and accessing financing, mentoring, and entrepreneurial training programs through the U.S. Small Business Administration and associated centers. However, a number of interviewees raised the lack of oversight as being counterproductive to the purpose of the federal procurement policy, because the federal government does not have in place tracking and reporting mechanisms to verify whether the spending has been allocated to women-owned businesses.

By highlighting the nuanced, industry-specific barriers faced by women entrepreneurs in tech in this report, we hope that it will drive the entrepreneurial ecosystem to make strategic changes toward supporting the unique needs of women founders.

Appendix I: Profiles of Women Entrepreneurs



Amelia Friedman, cofounder of Hatch Apps

Amelia Friedman is a cofounder of Hatch Apps, a company that automates software development, making it possible for anybody to design and launch an app without coding. Amelia has been named to *Washingtonian's* "Tech Titans" list, as a "Power Woman of DC Tech," and to *Forbes'* "30 Under 30" list. Prior to Hatch Apps, Amelia founded the Student Language Exchange, an education nonprofit she grew to operate in seven cities and for which she was awarded a Halcyon fellowship.

An advocate for women in tech, Amelia helped to launch the Vinetta Project in DC. The organization now grants a \$20,000 cash prize to a local female founder, engages with 150-plus founders and 100-plus investors annually, and has helped DC-area female-founded companies raise millions in seed-stage funding. Amelia also serves as a mentor for the C.V. Starr Social Innovation fellowship and on the advisory board for SXSW's LAUNCHedu. Amelia graduated Phi Beta Kappa from Brown University in 2014.

GIWPS: Could you share if there were specific challenges that you face being a young female entrepreneur in the technology industry?

Amelia: It's tough because nobody ever says to you, "I'm not considering you for this because you're a woman." You have moments when you sense that somebody passed you over, so you think, "Is it because I'm a woman, or is it because I'm not qualified?" I think it's hard for me to say that I've been discriminated against. There have been moments where it was obvious that I've been passed over or when someone assumed I'm not the founder because I'm a woman. But I think there are so many factors at play. My cofounder, who is a man, also has a very different personality than me. My cofounder is about big vision and big ideas, and I'm like, "Everything's gonna go wrong" and super in the weeds. People do treat me differently, but I think it's partly because I'm a different person. That's the thing about these issues: it's very rare where it's absolutely discrimination, and I've never experienced it from an investor in an obvious way. I've experienced what might feel like discrimination, but I don't know if it's because of my personality or because I'm a woman. And I think that's what's so infuriating, because you never really do know so you can never call people out. We know there's discrimination against women, statistically speaking. If I'm asked to break down my day and say, "Oh, was this discrimination?" I can never tell. But there are moments where you feel excluded.

GIWPS: When you started, you financed the company through seed and venture capital. Could you share more about your decision to do that?

A: It didn't occur to me that there was another option. We started the company when I was 23, so I didn't have savings, and we thought we were going to build a free product so we couldn't do presales. It never occurred to me you could fund-raise in a different way. For some companies, venture capital might be the best way, but for most, you want to bootstrap as long as you can through presales and things along those lines—use your own capital and hit product-market fit before you fund-raise from outside investors. But we didn't know that was a way you could do it. You see it on the news, these companies raise incredible amounts of money. They start the company and raise \$3 million the next day. And so we said we'll do that too. That's a problem—people need to be educated on what taking venture capital really means, because it totally changes what you can do with your business.

GIWPS: Do you think the legal, social, and economic environment in the United States is supportive for women entrepreneurs in tech specifically, and what changes have you seen since you started your company and until now? Where do you hope to see it evolve?

A: Well, we know it hasn't changed—the 2 percent number [share of venture capital invested in female-founded companies] has stayed the same for years. With a lot of issues, there's a wave every few years of people being outraged, and then it passes and nothing changes. It's not like our institutions are discriminating against us—it's people and the way that we're socialized. I think that requires generational change. It requires us to raise our daughters and sons differently. I also don't feel like it's just men that discriminate against women. I feel very strongly that sometimes women discriminate against women. For example, I'm 27, and I'm getting married. In the next couple years, people might be curious and think, "Is she going to try to have kids while she's building this company?" That's a different issue for women than for men. There are women that will pop a baby out and be back at work the next day, but realistically that's a minority. If you're an investor, it's kind of like pattern recognition: "I don't want to make an assumption that you're going to take six months' leave and I don't want to assume you're going to have kids," but you know that those things are going on in the back of somebody's head. And that's something that people perceive differently when it comes to men. With a man, you'd probably just assume they'd take a few days and go back to work.



Christina Seelye, founder and CEO of Maximum Games

Christina Seelye is the founder and CEO of Maximum Games (MG), a global video-game publishing company founded in 2009. MG has become one of the top 20 video-game publishers in the world, as recognized by market researcher NPD. Named one of the “Fastest Growing Companies in America” by *Inc.* magazine and the *San Francisco Business Times* for five consecutive years, Maximum Games has also been recognized by the American Business Awards, Deloitte, and the Women Presidents’ Organization as one of the top-ranking privately held companies in America. Christina built and continues to expand her career as an entrepreneurial business leader by guiding early stage technology companies to rapid growth and market prominence through both organic development and strategic mergers and acquisitions. She holds a BA in fine arts from Sonoma State University.

GIWPS: In terms of the biggest challenge you faced when starting your business, you indicate that access to credit and finance was a challenge. Could you elaborate?

Christina: I didn’t start the company with a grand strategy of becoming a top 20 video game publisher. We started very opportunistically, in that I noticed there was some interesting content that had been launched in Europe only, and I thought we could pretty easily bring that to North America. Because we weren’t starting a company, we hadn’t gone through the process of getting a small business loan—we were truly bootstrapping the deals, one after the other. We coordinated a deal with both the vendor we were working with in Europe and our customers here in North America that allowed us to have positive cash flow. So, for the first year and a half, we basically ran the business on cash flow from the company. When we started becoming profitable, we went to banks to get a small business loan or line of credit, and were met with “You haven’t been in business three years yet” or “We really only bank people with venture backing.” We had a very hard time, and it truly did take us three years to get a loan because we had to hit that mark of profitability. Even so, we were only able to secure a \$250,000 small business loan, and this is when we were doing about \$4 million in business. A lot of it was because, being in software and technology, we didn’t have the balance-sheet assets that banks can loan against. There wasn’t enough collateral for the business, so it was really challenging. It took us six years to get to the point where we had enough gravitas with the banks to get the financing structure that we needed. I believe not having proper access to capital significantly slowed our growth.

GIWPS: You brought up an interesting point in terms of different preferences between women and men when starting a business. Why do you think women don’t go directly to venture capital, angel, or seed funds more often than they do?

C: Access to a network is the core issue—they just don't know who to talk to. Women also tend to be more conservative and think it may be better for them in the long run to bootstrap instead of giving control over to a venture company. One of the reasons I am an entrepreneur is because I want more control over my own destiny, so I did not want to start the business with outside capital. I wanted to try to get as far as possible on my own, whereas men tend to be a bit more comfortable going the venture capital route. We have also had a lot of success with what I call "rich guy financing." Getting video games to market requires capital for short bursts of time, so we would do short and very high interest rate loans—for six months at almost credit-card rates—and then flip it back. It was good for the debt holder, because they were getting a good interest rate and return on their money, and it was great for us because we could fund small projects that fueled the company moving forward. Ultimately, this gave us a lot of credibility when we went back to the bank, because we already had a history of paying back our debts.

GIPWS: In your experience, when you're in networking settings, do you find that women entrepreneurs or executives are more helpful than men?

C: I don't find women more or less helpful than men. I think men in executive and CEO groups generally listen to women in the room and want to be helpful. At the end of the day, competence trumps bias, and if you can show your competence, you really can get a person's unconscious bias flipped to where that person becomes an ally. I think one of the challenges women have is that they tend to limit their networking to other women, and that leaves a lot of allies on the table who really want to support women.



Claudia Mirza, CEO and cofounder of Akorbi

Claudia Mirza is the CEO and cofounder of Akorbi, a group of companies specializing in building human connections through language, technology, and workforce solutions.

Akorbi began as a company focused on language translation services and has since grown to offer many different multilingual business solutions, including interpretation, staffing, contact centers, learning services, and localization.

Akorbi recently made the *Inc.* 5000 list of fastest-growing private companies in the United States for the fourth year in a row. With 166 percent growth in the last three years, it was also named the 11th largest language service provider in the United States by global market research and international consulting company Nimdzi Insights LLC.

Claudia is a published author in key industry publications, an inventor with patents pending, and a philanthropist. She holds a business management degree from Cotecnova in Cartago, Colombia, and is a graduate of the Tuck-WBENC Executive Education Program at the Tuck School of Business. In addition, she has a management certificate from the Southern Methodist University Cox Executive Education Program and a BS in business administration from the DeVry Institute of Technology. She is also a recent alum of Harvard Business School's Owner/President Management program.

GIPWS: As a woman entrepreneur in the technology industry, do you feel there are specific barriers you face in a traditionally male-dominated field—or do you think being an entrepreneur is just difficult?

Claudia: As a female business owner, you will always struggle with people who try to take advantage of women, especially minority women. There are predators in every industry that believe women are weak and lack business knowledge and power so they are easy targets for a quick payday. There are more attacks, more fraudulent behavior, and jokers who try to take advantage of you. I remember getting a phone call one day from a man saying, "I am calling because I am going to be your salesman. We have a lot of contracts and you are a women-owned business. Let me help you win these contracts." I signed a contract with this guy for one-tenth of the contract value he was asking, but he did not deliver on his sales targets, then told me he was going to sue me for terminating his contract. I took him to court, and he did not show up. I know this isn't the experience of all women, but I encourage you to validate such predatory behavior with some research—especially among fellow female entrepreneurs who have experience and can spot the frauds—before you dive in.

GIPWS: When you started your business, you used savings and bank loans to finance your company. I'm curious why you chose to use bank loans instead of seed or angel capital. Was it challenging to access those? Were they not an option for you?

C: I come from a very poor background with parents in the agricultural industry. I am the first person in my family to graduate from college. When you have this type of background, you don't know—I didn't know the different options available to me. When I went to bankers, they said, "If you are a service-based business, you have no access to money." The banking industry looks at a service-based business start-up and fails to see value because, in their minds, you have no tangible assets. If you are a service-based start-up, your choices are very limited unless you finance it from your own pocket. That's the reality and a large hurdle for many in the service industry to overcome.

GIPWS: You said you had a mentor when you started. How was that useful for you in starting your business? Has that mentor relationship changed as your business grew?

C: There is a common misconception about the mentor-mentee relationship. People assume a mentorship to be a formal relationship: both parties dressed up, sitting at one table, and having a one-on-one conversation. In reality, getting that level of commitment from one person to follow you through month after month is very difficult. So I didn't have one mentor—I had several that all supported me

in different areas of life and helped me gain the success I have today. Building a network of mentors and supporting peers is something I am passionate about and continue to build for myself. At the Women Presidents' Organization, we have peer support groups that allow us to open up and talk about anything going on in our lives, from personal life changes to big business decisions. I've developed relationships through my Harvard network and continue to have a lot of informal conversations with people who have helped me along the way. Mentorship doesn't need to be that structured. It's about being inquisitive and asking questions. I do a lot of mentoring that way and I see the trend within other companies that are working hard to develop a culture of mentorship within their organizations.

GIPWS: Do you think women tend to help other women, or mentor other women, more than men? Did you find men being equally helpful?

C: Men are helpful; however, in my experience, women are more nurturing and caring about feelings, emotions, and the struggles we all face together balancing work and life. In my group of 20 women within the WPO, we genuinely care about each other a lot. For example, last night, I had been driving for 15 to 17 hours, and I got a text from one of the women in my group asking, "How are you doing? We are worried about you." It was so touching to know that, with all their craziness of their own lives, they still care enough to take time to check on me, and I do the same for them.



Dao Jensen, founder of Kaizen Technology Partners

Dao Jensen founded Kaizen Technology Partners, the first 100 percent female- and minority-owned, cloud-focused value-added reseller (VAR) in the Bay Area, helping *Fortune* 500 enterprise clients optimize, strategize, and procure data centers and cloud environments. The company started in San Francisco, California, and has over twenty years of industry experience and proven customer success. Dao has personally grown and bootstrapped the company to over \$12 million in sales in five years' time. In its first year of business, Kaizen won "#1 Cloud Reseller in the Nation" for Avnet technology.

Some of Kaizen and Dao's most recent awards and accolades are: Enterprising Women of the Year Award 2019; Women Presidents' Organization 50 Fastest Women/Owned Led 2019; Women in Tech Entrepreneur of the Year finalist, Silicon Valley 2019; Enterprising Women of the Year Award 2019 (\$10 million and up to \$25 million in annual sales category); CRN "Women of the Channel" 2018; ranked 107th fastest-growing private company in 2017 and 2018 and ranked seventh fastest-growing private IT services company in the United States in 2017 by *Inc.* 5000; ranked by

San Francisco Business Times as a “Top 100 Women Bay Area Owned Company” in 2017; 2017 Silver winner and 2018 Bronze winner for the Stevie Awards for Women in Business Nationwide for Companies under Ten; scholarship awardee for class of 2020 Harvard Business School Owner/President Management executive three-year program; Ernst & Young Entrepreneurial Winning Women Class of 2017 finalist; and 2019 Enterprising Women of the Year.

GIPWS: As a woman entrepreneur in technology, are there specific barriers that you face in a traditionally male-dominated field?

Dao: Definitely, especially if you haven’t had experience in the past. I think the ability to get money and funding and loans, especially in an unproven business—either it’s not as strong or you don’t know as much—and also being able to get contracts. It is challenging to be taken seriously and compete for a contract. The hiring is even more difficult. From a hiring perspective—and maybe this is not a female-specific challenge, but more just being a founder without cofounders—I think being able to bring people in when you’re doing it yourself is harder as well. I mean women tend to want to work for other women, but I also think they have a harder time making that decision. Because they’re very cautious to move from a job with certainty to something that’s more of an entrepreneurial company.

GIPWS: How did you finance your company?

D: I did not have many people that I knew close to me who could give me a lot of details on what it was like to start a business, so there’s definitely a lack of confidence at the beginning. I also did not know how to go get funding or had anyone who I was close enough with to teach me how to do that. I didn’t have the network I have today with WPO and Enterprising Women. At that time, I didn’t have any of those networks; I was too busy trying to figure out how to start getting my first orders. I would advise other women entrepreneurs to seek out ways to finance the business without having to give up equity. I’m not really sure I feel comfortable giving that much equity away. I’d rather pay interest. Part of the reason is I’m not in a corporation, and having my own company is the autonomy to do what I want to do.

GIPWS: Is our current climate conducive to supporting women entrepreneurs? Could you speak more to the ways you mentor and help other women?

D: I believe we are now in an ecosystem where we help other women. In terms of overall support for women entrepreneurs, I think there are a lot of areas for support. I’d be surprised if people weren’t able to find them at this point. A lot of what I do is provide financial assistance. I have a finance degree and background, and I’m on the board of a couple of start-ups, so I advise women entrepreneurs on their finances—helping them get more cash flow and making sure that the company is not taking on more debt. The key thing is there are a lot of women entrepreneurs that are making money but they’re not doing it wisely.



Doris Yeh, CEO and cofounder of Mirapath

Doris Yeh is the CEO and cofounder of Mirapath, which designs, procures, installs, and manages data center, lab, and IT infrastructure for high-growth and enterprise organizations. Prior to founding Mirapath in 2003, Doris began her technology career as a software programmer in Brazil. She joined Cyclades Brazil in São Paulo, where she quickly found herself drawn to technical sales and was relocated to their U.S. branch to assist in the growth of the company while overseeing sales and support. Doris later joined VA Linux Systems, where she expanded her technical knowledge in server and high-performance cluster integration strategy. When VA Linux became a software company, SourceForge, she quickly adapted to selling enterprise software solutions.

Doris holds a BSEE from University of São Paulo and received her MBA from the University of Phoenix. She graduated in 2018 from the prestigious Harvard Business School Owner/President Management program. She was named a “Silicon Valley Women of Influence” in 2018 by *Silicon Valley Business Journal*. In 2017, Doris was on the “Fast 100 Asian American Business” list by the U.S. Pan Asian American Chamber of Commerce.

GIWPS: Do you feel that there are specific barriers that you face being a woman competing and trying to set up a company in a traditionally male-dominated field? Do you think anything has changed in the last 15 to 16 years?

Doris: Yes, I do think that it is still prevalent today. If I’m going into a room and I’m going with a counterpart, I would always be the person reporting to the counterpart. One of the things I do, and have my team do, is make sure they know who is actually joining the meeting. However sometimes they have a new participant in the meeting—who may be a woman—and it’s actually very normal for people to feel that it’s the man running an IT company, and not the woman.

In terms of changes, I think in the last two years things have changed a little bit because of the #MeToo movement, and people are a little more conscious about it—but if you really, really dig deep you know there’s still that stereotype. I don’t think that it’s just a stereotype, because if you go to an IT event or even if you go to an engineering class, it’s predominantly males. So it’s very normal for them to think, “This organization is not run by a woman.” I think that as women entrepreneurs, it’s about accepting that is what is happening, thinking about how we can actually promote the diversity of the new generation coming up, and participating in the movement that’s actually happening so that we can create awareness. I think that things are changing, but at a fairly slow pace.

GIWPS: Could you share more on some of the people you consider your friends and mentors now? How did you actually meet them, through what organizations or networks, and how have they been helpful?

D: I actually want to share this story because I want to make sure that other entrepreneurs that start out can do it faster. And I can see that when I meet entrepreneurs and I'm telling them about it, sometimes they're like, "Oh, I have no time." I bought the building our company resides in, because I felt that I didn't want to pay rent again. The person that refinanced my building, her name is Judith Goldkrand, she is a VP of Wells Fargo. And in that process, she said, "Doris, you know, you're a woman entrepreneur—do you want to join this organization called Women Presidents' Organization?" And I'm like, "Way too busy. No time." She's very nice and so she kept on asking me to go. She asked me ten times, and I actually decided to go. It was a local chapter of WPO, and the first day I went in, they were talking about strategy. And I was so busy—in and out of the room the whole time. I think it wasn't until the fourth meeting that I said, "Oh, they're talking about something that's really valuable for me!" And then I started joining, reading books, talking to other entrepreneurs, and actually that made things a lot better. First of all, it decreases the voice in my head that said, "I don't know what I'm doing." The second thing is that quite a few other CEOs have made the same mistakes I did. And they walk through how not to make the mistake or how to get out of the mistake faster, and sharing those experiences is actually invaluable. The third thing that was valuable was that I felt very lonely, because I worked crazy hours. I liked to work the weekends. I leave my job and sometimes I just think I'm weird because nobody is like me. When I started networking with other CEOs, I found out that they are just like me. They're just as passionate as I am; they're always thinking about how to merge our personal lives with work, how it always is a balance problem, and it's OK to be in the space that we're in.

GIWPS: Have you found that there tend to be more women that you rely on, or is it a mix of men and women?

D: No, I actually have a group of men—I have men that have helped me tremendously. I think you need to find someone who knows you and really wants you to succeed, and that can be a man or a woman. I just think that we need to look for it, and when you find it, you recognize that that person is there and you grab onto them and don't let go. I think people that believe in your potential, if you keep on disappointing them, then they're going to put their effort somewhere else. Because if you don't want it as much as they want it for you, they're not going to stay there and keep on hoping and wanting it for you.



Jessica O. Matthews, founder and CEO of Uncharted Power

Jessica O. Matthews is the founder and CEO of Uncharted Power, an award-winning, full-service power and data infrastructure technology company that uses its patented suite of technologies to build, own, and operate power infrastructure and to provide communities with energy that is both clean and low-cost.

The company was founded by Jessica when she was only 22 years old. She was invited by President Barack Obama to the White House to represent small companies for the signing of the America Invents Act in 2012. In 2016, she raised what was, at the time, the largest series A ever raised by a Black female founder in history, and was selected to ring the NASDAQ opening ceremony bell, representing all *Forbes* “30 under 30” alumna.

Jessica’s career centers around the intersection of disruptive technology, renewable energy, human behavior, and the psychology of self-actualization. A dual citizen of Nigeria and the United States, Jessica has a degree in psychology and economics from Harvard University, an MBA from Harvard Business School, and is listed on over 11 patents and patents pending—including her first invention of the SOCKET, an energy-generating soccer ball, at the age of 19. Her list of accolades includes being a Ford Freedom Award scholar, one of *Fortune’s* “Most Promising Women Entrepreneurs,” *Forbes’* “30 under 30” list, *Inc.* magazine’s “30 under 30,” and Harvard University Scientist of the Year.

GIWPS: Do you feel that there are specific barriers that you face operating in a traditionally male-dominated field?

Jessica: I think the key is to be very careful about the definition of the word barrier. Relatively speaking, when analyzing all men—in particular straight cis white men—there could be an argument made that it is easier to do business in general if you’re a heterosexual cis white male working with other hetero cis white men. Taking into account the hierarchies within and social stratification that exists across so many communities—and industries like infrastructure, where a lot of capital is required—it just happens that the people who have capital, the people who tend to understand how to generate wealth and how to maintain that wealth and leverage it for power, happen to be this demographic here in the U.S. It’s no secret and psychologically proven that people like to do business with people they are familiar with and who remind them of themselves.

So it’s not necessarily something that’s intentional. But yes, given that this aforementioned framework exists, given the reality that we live in a world where race and social stratification still dictate much—as a black female leader in this space, based in Harlem with a very diverse team and an allergy to being anything other

than my authentic self—it would suggest that my path is not easy and obstacles do exist. In my personal opinion, however, it doesn't mean that there is no point of entry. It's something that you can go into saying, "Oh my gosh, look at all these mountains, look at all these obstacles" as it becomes exhausting. I believe it's important for us to view these barriers as a competitive advantage. While there are quite a few barriers, the opportunity exists in the fact that you can present a new idea just because you're coming from a new perspective. And that new perspective ends up being our competitive advantage. The way we at Uncharted Power built our team is an example of this. And the fact that it's such a difference from the existing status quo offers us that confidence in knowing that we have something that will actually change and impact the world going forward. Infrastructure, both here and in developing and international nations, is an arduous task no matter your race or creed. In my opinion, barriers exist, but in a weird way I think that adversity is what's necessary to sharpen the effectiveness of a team and the solution that we're bringing forth to the market.

GIWPS: What kinds of ways do you think a mentor would be beneficial to you at this stage of your business? Do you have mentors that you rely on for advice now?

J: You cannot dream of what you can be if you can't see it in some form. I think at any given time people need mentors and advisors. When I first started out on this journey, there was no one I could specifically point to, but there were a lot of people who definitely made things easier for me. To start, my father was an entrepreneur, so he was able to provide some sound advice as I kicked off my company. There were also investors I found who became advisors and mentors as well. For persons of color, as we continue to seize new opportunities and press even further in our accomplishments here in the U.S., you're going to be hard-pressed to find someone who looks like you who's doing what you're doing. The key here, as a result, is to separate out the features and the characteristics of the things you want to do. And often your support network will be your peers. I converse often with other black female founders, lawyers, and business-minded individuals, who offer me unique perspectives I can pull together when I need counsel.

GIWPS: In what ways can the private sector or the government better support women entrepreneurs in tech?

J: There are some federally mandated programs around working with minority and women-owned businesses. However, I think more can be done to publicize these opportunities and to ease the process for entrepreneurs to engage. Perhaps it might be useful to invest in marketing and operations so that it's easy for entrepreneurs to apply. Commonly, you have to overcome several obstacles to be certified as a minority- and women-owned business enterprise (MWBE) formally. To make it easier, I think they should find a way to ease those hurdles if they're really trying to help organizations that are looking to take advantage of these much-needed opportunities.



Joyce Durst, cofounder and CEO of Growth Acceleration Partners

Joyce Durst is the CEO and cofounder of Growth Acceleration Partners (GAP), a continuous software delivery partner that works with growth and enterprise clients to develop custom mobile and web applications. She leverages more than 30 years of software-industry experience to lead double-digit growth and profitability at GAP, based in Austin, Texas.

Before cofounding GAP in 2007, she was the CEO of venture-backed start-up Pinion Software, where Joyce raised \$21 million to fund the launch of several pioneering products in the security space. She also spent 12 years at BMC Software, a publicly traded software solutions company, where she held numerous roles spanning marketing, sales, and product development. She was quickly promoted to vice president and general manager of the products division, overseeing more than \$200 million in sales.

Joyce's biggest passion is investing in others, and she is committed to mentoring women CEOs and first-time entrepreneurs. In 2018, Joyce received the Executive Leadership Award from the Austin Chamber of Commerce. She is also active with the Women Presidents' Organization and Special Olympics. She earned a bachelor's degree in computer science from Texas A&M University, where she serves on the development council for the Mays Business School.

GIWPS: What advice would you give to other women entrepreneurs in tech who are just starting out?

Joyce: Over the years, I've learned tips and techniques from other talented and brilliant women that have helped me learn to hold my own. If I'm in a meeting with a group of men that are not only talking over me, but over each other, I've learned how to assert myself. I've received great advice from Lynda Applegate, a Baker Foundation professor and head of the entrepreneurship program at Harvard University. If she was in a meeting with a group of executives and she felt like she wasn't being heard, she would stand up from the meeting table and walk to get a cup of coffee—which is typically in the back of the room—and, before sitting down, she would lean over and put one hand on the table. That process would prompt everyone to stop talking and redirect their attention to Lynda, which then allowed her to make her point without being overshadowed. I thought that was brilliant! I've used that technique from time to time. With the male executives on my team, I'll point out to them, "Hey, you're talking over some of the women in the room," and usually they won't even know they're doing it. I've been intentional in bringing awareness to the different ways that men and women work and communicate so that we can all work in a more collaborative space together.

GIWPS: When you were scaling your company, what were the financing options that you were considering? Was that a challenge for you at the beginning, to obtain financing other than relying on bootstrapping and your own savings?

J: There are very few venture capital funds that want to participate in the services industry, so they really weren't an option. The key to success for all entrepreneurs through whichever funding channel—whether they're bank loans, subordinated debt, venture capital, or private equity—is to build those relationships years before you need them. Even today, we have taken some bank loans and opened lines of credit. We're not immediately looking to take on outside investors, but that might change in three or four years. Every quarter, I meet with two to four different brokers, because at some point I will need them and I want them to know me, to feel confident about my company, and to feel good about the culture I've built here in the team. When I am ready for financing, they already know "I want to be part of that." I think that most women entrepreneurs don't start building these relationships until they need them, and that's way too late.

GIWPS: Are you part of any networks or organizations that have been instrumental to your business development?

J: Absolutely, and I couldn't do without them. I'm part of two organizations now and I may join a third organization next year. I'm a member of the Women Presidents' Organization, and they have been instrumental in challenging my strategic business thinking on all levels. They ask really hard questions and it's a great support system. For each of our chapters, the information we share is kept completely confidential, and we don't have any kind of competitive groups within individual chapters, which allows for an open share of information. They've been tremendously helpful providing great access to resources and educational information, so I have an enormous amount of gratitude to them. Another organization that I now mentor a lot of CEOs through—but I joined in 2001 when I was a first-time CEO—is called Springboard. Their focus is on helping women entrepreneurs get access to capital and the experts that they need. They have helped a thousand companies get launched, and a number of those have made it through to an IPO or really successful exits. There are several networks out there, but I think every CEO should be a part of one or more of these—because when you're in the CEO seat, it can be pretty lonely. There are a lot of things that you can't always strategize with your team. There are some burdens you need to carry alone, and having a support system to rely on and seek advice from has been great for me in making sure we stay on track for high growth.



Kathryn Petralia, cofounder and president of Kabbage

In 2009, Kathryn Petralia cofounded Kabbage, a financial technology and data company pioneering a new, automated way for small businesses to access working capital. To date, the billion-dollar company has helped more than 200,000 small businesses access over \$8 billion in funding. In 2017, the company raised \$250 million from Softbank Group Corp., raising its total equity funding to \$500 million and making Kabbage one of the most well-funded companies with a female cofounder at the helm. That same year, the company ranked on the *Inc.* 500 list as one of the country's fastest-growing private companies for a third consecutive year, on Deloitte's "Fast 500" list, among CB Insights' "Fintech 250," in the top ten of KPMG's "Fintech 100," and Kathryn was named one of *Forbes'* "100 Most Powerful Women in the World."

Before founding Kabbage, Kathryn spent almost 15 years working in the credit, payments, and e-commerce industries. She was vice president of strategy for Revolution Money, an internet-based credit start-up, and director of corporate development with CompuCredit Corporation, now known as Atlanticus. She was also cofounder and vice president of strategy for WorthKnowing.com and director of strategy for Visionary Systems. Kathryn holds a BA in English literature from Furman University.

GIWPS: One of the challenges in starting your business was accessing capital and fundraising. Could you explain more about the difficulties there, especially as a woman entrepreneur in a traditionally male-dominated field?

Kathryn: In terms of being a woman entrepreneur, my gender has had nothing to do with the challenges I've faced. I cannot tell you a single time, throughout the course of the last ten years, where I felt a negative impact just because I am a woman. I definitely observed a lack of diversity on the gender front, but I haven't thought that that was a hindrance to me. But, to be fair, I had two male cofounders, so that could have been a reason why. I think the biggest advantage that we had was one of our cofounders, Marc, had a very extensive network in the investor community, and I think it would have probably been harder for me to get into that network because there aren't that many women. We were probably in our 15th or 20th venture meeting in Silicon Valley when there was finally a woman in the room and she wasn't bringing me water. I didn't notice the lack of women in meetings until there was a woman. Her very presence is what amplified the absence in all the previous meetings I attended. I think that if you are a woman on your own, building out your network is much more challenging, because you are not out playing basketball and golf with the guys and, you know, all of the other things that dudes do socially outside of work. Getting access to the network is the hardest part.

GIWPS: You mentioned that you didn't have a mentor when you started, but now you are giving back to other women. Do you feel that you have other supportive people in your life that you can call mentors? How are they helpful?

K: I get this constant source of education just from our employees, and I think they get that from each other. For example, I just had a conversation today with somebody who is on one of our teams, and recently, in the last six months, she moved to another team. She said she was still learning things from her boss. I think that's fantastic. And I actually thought to myself, "You know what? I learn things from the people who work for Kabbage." They are a constant source of education.

GIWPS: You mentioned that being based in Atlanta is a challenge to getting financing, but you also said that there have been changes in Atlanta and it's becoming more of a tech hub. Could you elaborate on these changes?

K: At the risk of sounding incredibly arrogant—I do not intend it this way—I will say that Kabbage has a lot to do with raising the visibility of Atlanta among tech investors outside of Atlanta, because we just raised so much money. Ten years ago, there was almost nothing here. I mean, we had outside ventures—we had IFS, which was sold to IBM. That was the big one. It made a lot of impact in Atlanta. Eighty percent of all electronic payment transactions that happen in the United States flow through Atlanta-based businesses. The data-security business grew up around that here in Atlanta, but we still didn't have a lot of a big start-up culture. It was hard to get investors.

We had one big investor offer us a term sheet for our series A, but he said we had to move to San Francisco, and we didn't want to do it. So we had to go through a lot of nos to get to a yes. In every meeting, investors asked, "Why Atlanta?" We'd say, "Because we live there!" I think the view of Atlanta as a backwater location has made it a real challenge. We have a fair number of questionable legislative items that will be viewed negatively by anybody in California. But now we have all these incubators and accelerators, so there is a lot happening. There are not a lot of local investors, though, and you still have to get on a plane to raise money.



Kelly Ireland, Founder and CEO, CB Technologies

Kelly Ireland founded CB Technologies (CBT) in 2001 as a value-added reseller focused on unparalleled client service. She built up CBT's engineering expertise, data science practice, and partnerships to revolutionize the company's offerings and make the difficult transition from VAR to systems integrator. CBT is now in rarefied air, bridging the gap between operational technologies and information

technologies with groundbreaking projects like the Refinery of the Future at Texmark Chemicals. Successful initiatives in industrial internet of things (IoT) and high-performance computing have positioned CBT as a key partner to industry-leading companies such as Hewlett Packard Enterprise, PTC, Deloitte, National Instruments, Antea, RealWear, SparkCognition, and more.

This has spurred explosive growth for CBT, increasing its revenue year on year by 46 percent in 2018. Kelly's leadership has also led to a myriad of accolades, including the HP PartnerOne Solution Provider of the Year Award for Cloud, nine consecutive Boeing Performance Excellence Awards, two consecutive CRN IoT Innovators Awards, and the 2019 Women Presidents' Organization's "50 Fastest-Growing Women-Owned/Led Companies." Kelly has also achieved numerous personal awards, including being named one of CRN's 2018 and 2019 "Women of the Channel" and "Power 30 Solution Providers."

GIWPS: Are there specific barriers that you face being a woman founder in a traditionally male-dominated field?

Kelly: I'm sure the answer you get all the time to that is "absolutely." It's changing, and I think what we're starting to see is because of the millennials and Gen X—when the baby boomers get out of the way—because a lot of that mentality comes from them. It's dwindled down a little bit each generation, and I'm seeing a lot more respect from the millennials. And I think a lot of that comes from the fact that I really embrace them. I see an intrinsic value to what they bring. At CBT, I've been taking seasoned engineers and other personnel and matching them up with millennials and telling them that this is a co-mentoring environment. And what I've found is a really nice level of respect, interaction, and knowledge sharing on both sides.

On the other hand, you have the legacy IT companies that have been around for a very long time and the overarching view of how this industry has run over the last several decades. Those companies have some luggage that comes along with them versus the newer ones. For example, I'm included in roundtables and presentations, and I'm a speaker in a lot of places—but even with the newer companies, I'm usually the only female. There are not enough women in these industries, and there are not enough women that are either comfortable speaking or are in a position that they are viewed as someone you want to have speak. I'm able to speak to that because I'm technical—I was a programmer before I opened my own company. I can speak geek and I enjoy it, but I don't think there are a lot of women out there leading companies who do. This is something I'd like to help support and nurture over the next several years. I'm active in STEM, STEAM [which integrates the arts], and mentoring initiatives via the Women's Business Enterprise National Council (WBENC)—everything we can do to try to help encourage, support, and keep more females in the technical industries.

GIWPS: What advice do you give to your mentees?

K: I talk to them about imposter syndrome, because so many times you get women that bring that up. I'm certain I had that at the beginning when I opened CBT. That was 18 years ago, and I'm sure I was not confident. I remember being in situations, saying to myself, "Why am I here?" when I attended events or roundtables in the early years. I thought, "I don't belong here," when I really did. I also emphasize to

look for both male and female mentors and be really open and diverse with their choice of mentors. They don't have to be a part of the same industry.

GIWPS: One of the key catalysts you mentioned that would help women businesses expand and grow is to increase access to new markets and customers. Could you elaborate on your suggestion?

K: My main suggestion is to approach this through organizations like WBENC. WBENC's ability to provide all types of woman-owned businesses with access to expand their opportunities is phenomenal. WBENC's corporate members list is a who's who of global companies and U.S.-based large enterprises. To them, being diverse and woman owned is key. I'm in the WBENC West region, and I'm also affiliated with the Pacific Northwest. These are strong regions with exceptional female leaders providing multiple services, including business classes, conferences, and corporate matchmaking opportunities. I believe that just being in the organization to have the ability to advertise your product and services is useful. They have coaching sessions, they help with your elevator pitch, and they provide access to other woman owners who can share experiences, insights, and knowledge. To me, that's key.



Naomi Hirabayashi and Marah Lidey, cofounders of Shine

Naomi Hirabayashi and Marah Lidey cofounded Shine, the world's largest digital self-care club, in April 2016. The Shine app helps members treat themselves better through daily meditations paired with motivational messages. Since their official launch in April 2016, Naomi and Marah have grown the Shine community to four million users in 189 countries and raised about \$8 million in venture capital.

Prior to Shine, Naomi was the chief marketing officer at DoSomething.org, the largest organization for young people and social action in the world. Marah's expertise lies at the intersection of millennials and messaging; she previously directed mobile and social teams for brands like DoSomething.org, American Express, and Viacom.

GIWPS: What barriers (if any) do you face being women cofounders of a technology company?

Naomi: Our experience has been interesting. There have always been challenges at every stage—it's never easy. It can get so glamorized, and there's so much privilege and beauty in assessing a problem and building a company. But Marah and I come from a more nontraditional background. We became entrepreneurs because we sensed a problem in our life: Why isn't there an easy, preventive solution to help us treat ourselves better?

We created Shine as people and as consumers struggling to find a solution to a problem that we experienced, and that has been a more unique path to becoming entrepreneurs. We didn't go to business school, and we didn't always know we wanted to do this. It's also the hardest thing we've ever done.

At the beginning, the biggest challenge was that the VC community is set up in a way that is meant to feel exclusive. You need warm introductions. And how do you get warm intros? Well, you are most likely to if you go to business school. But what if you didn't go to business school? There's a lot of jargon and red tape, so now that we've raised a couple rounds, and we've been in the community for about three and a half years, we feel a lot more comfortable. But at the beginning you can very easily feel like an outsider. Needing to walk into a room with the most confidence you've ever had is a tricky thing to balance!

We gathered our confidence from the impact we knew our product was having and the feedback from our community.

GIWPS: What was your process of securing funding for your company?

N: What we did was pretty unique: we've been pursuing institutional funding since our first round, and we've raised three rounds to date. We started Shine as a side project for six months, and we were very open with our current employment at the time—the company where Marah and I met. We essentially fundraised our pre-seed round when we still had full-time jobs. And we told our employer the plan and gave them three months' notice. We took off any remaining vacation we had and basically raised a pre-seed in about a month and a half.

We were just learning as we went and didn't have a lot of experience in the VC space, but we were committed to our jobs at the time and making sure everything got done on that front. And through open communication with our employer, we were able to transition to the next stage of going full-time with Shine. We weren't in a position to be able to not have a salary or not be able to pay rent or bills, so that's why we knew we had to raise while we had jobs before going full-time.

Shine could have stayed a side project. We could have tried to bootstrap, but ultimately we wanted to really have the biggest impact we could and provide the most amount of people with the resource of Shine, and the way to do that is to bring in the rocket fuel through VC to stay ahead, to be first to market, and to build something really massive and also really impactful.

GIWPS: When you meet new women entrepreneurs starting out, what are some of your recommendations in terms of exploring different types of capital?

N: One of the things that Marah always speaks to, which I love, is knowing your power. Particularly in the beginning, it's such a vulnerable time and you feel so exposed because you're putting yourself out there. And so much of what you're building is reliant on somebody else. It can feel like you have limited control—but just remembering that you are why this works helps. The whole ecosystem works because people from all different types of backgrounds come up with creative ideas to the world's problems that we haven't figured out yet.

Early on we felt in our gut that maybe partners or potential investors weren't right, but we didn't always feel comfortable just relying on our gut. And that's something over time we've gotten better at. Because at the end of the day, our gut, our read on these things, and our experience is what makes us really strong cofounders and leaders.



Phyllis Newhouse, founder and CEO of Xtreme Solutions, Inc.

Phyllis Newhouse is the founder and CEO of Xtreme Solutions, Inc. She is also a retired U.S. Army noncommissioned officer and a service-disabled veteran with more than 22 years of military Service. Since founding Xtreme Solutions in 2002, Phyllis has grown the business into a profitable, multimillion-dollar company, supporting several prime contracts with civilian and defense agencies of the federal government and providing IT end-to-end solutions in information assurance, cybersecurity, and network support to numerous *Fortune* 500 companies around the globe. Currently, Xtreme Solutions has employees in 42 states, and 40 percent of the workforce has a military background.

Phyllis was also recognized as the winner of the Ernst & Young Entrepreneur of the Year 2017 National Technology Award.

GIWPS: You had a long career in the military and then started your own business. These fields are traditionally male dominated. Are there any specific barriers you faced starting a company in the technology industry, especially cybersecurity?

Phyllis: Spending 20-plus years in the military, I always tell people, “I already had the battle scars” before I became an entrepreneur. Honestly, this is a piece of cake compared to some of the challenges I faced in the military—and I think my [business] challenges have been very minimal because of my leadership ability and my higher level of confidence as a leader after having served 22 years in the military. When I started the business, from a leadership perspective, having the military accolades, discipline, focus, and drive—it truly had prepared me to walk into the shoes of a CEO and build a great company. Certainly, there have been some challenges. In the military, because it was such a male-dominated field and there were very limited promotions for women, you have to work through those challenges. I do believe it really prepared me for this next chapter. When I first started the company, in terms of raising capital, I used my savings. I didn't have the type of family where I could get a “family and friends rate.” In the black community, you can't go to friends and family and say, “OK, give me a million dollars.” So, from a cultural perspective, I knew that everything I had already saved was going to go toward cost of living for me while I achieved this thing of starting a business from scratch.

GIWPS: Another thing you mention is that you also relied on bank loans. But I think when you first started, it was hard for you to get a bank loan, wasn't it?

P: When I first started, I was going through a divorce. It was even more challenging because you are downsizing your lifestyle to accommodate this other interest that you have. So when I first went to a bank and told them I was starting a business, they said, "Well, where is your other source of income?" And I said, "I'm going through a divorce." That was a red flag for them, and I think many women who have gone through those life changes find it very difficult or feel there is just no way they are going to be able to have a start-up and raise the money because of this thing. So when I went to the bank, they said, "We want to see this thing get started and get some revenue. Come back in two years." I said, "I'll come back in two years, but I'll come back with a million-dollar check to deposit in this bank." I wrote a check for a \$1 million and I said, "In one year I'm going to be able to walk into the bank and cash this check."

I got a contract and I went to a woman-owned business, which at the time was about \$600 million, to propose a joint venture. I said, "If you will partner with me and you will fund the contract, I will bring you on as a subcontractor." This was work she otherwise wouldn't have been able to take on, and I knew I could get the work. And I said, "We just need start-up funding to payroll folks." She said, "When you get the first contract, you come back to me and we'll do a team agreement, where we fund the contract and charge you the same interest rate that a bank would charge you." That was my first contract—I went to another woman-owned business who funded the contract. One hundred and twenty days into the contract, we no longer needed funding. Fast-forward to where I am today: I have a lot of credit with the bank, \$16 million.

GIWPS: You mentioned it's difficult to hire women employees because there aren't enough women in the cyberspace industry. So where do you find employees? Are you interested in encouraging more women to work in the cybersecurity space?

P: We have 1,100 people on one contract, and less than 4 percent are women. So when I saw that—and this is a conversation in the tech community—I knew that to get more women in tech, you have to be a part of everything, from middle school to high school to college students. I'm a guest lecturer at Georgia Tech. I just did a lecture a few weeks ago, it was standing-room only and it was mostly women. And the professor was shocked, because out of those 600 students, more than 70 percent were women. These were potential students in cybersecurity at Georgia Tech. If you look at the students within the program now, less than 4 percent are women. They have a waiting list of over 2,000 people to get into this program, but a lot of those aren't women. What we wanted to do was introduce them to what these cyber opportunities look like. What are the skill sets, what are the requirements, what are the jobs, what does that look like in terms of the pay?



Sheila Lirio Marcelo, founder, chairwoman, and CEO of Care.com

In 2006, Sheila Lirio Marcelo founded Care.com, the world's largest online destination for finding and managing family care, serving more than 32.9 million members in over 20 countries. The service enables families to search for, qualify, vet, connect with, and select caregivers. It also provides caregivers with solutions to create personal profiles, describe their skills and experience, and otherwise differentiate and market themselves in a fragmented marketplace. It is a publicly listed company on the New York Stock Exchange, and Sheila continues to serve as the company's CEO and chairwoman.

Sheila was an entrepreneur in residence at Matrix Partners and held executive positions at Upromise, helping families save for college. She graduated from Mount Holyoke College and received her JD and MBA degrees from Harvard University.

GIWPS: So as a woman entrepreneur in the tech industry, are there specific barriers you faced in a field that has traditionally been dominated by males?

Sheila: Yes. There is often a preconceived notion about what founders look like and what the company should look like, and it manifests itself as gender bias. Unconscious bias, perhaps, but they are all still the same. For example, I was doing a non-deal road show, and we flew into a private airport because that was the only chance to take a meeting with an investor. I go to the bathroom, and then I go straight to the coffee because we hadn't slept in days. And I offered everybody coffee. Because of how I was raised, I felt it was the polite thing to do. When we then started shaking hands, they shook my CTO's and CFO's hands, both men, they got to me and they said, "You must be the assistant from the bank." And I said, "No, I'm Sheila Marcelo, founder, chairwoman, and CEO of Care.com. Nice to meet you!" I really focused on the questions they were asking me and, in a way, hopefully made them aware of their biases as opposed to hitting them over the head about it. I hope that experience made them more conscious of their bias in a way that wasn't mean-spirited.

GIWPS: When you started your business, we know that your primary source of financing was VC. Now, that's highly unusual, because it's so hard for women to access VC. Did you have VC in mind from the outset, and how were you able to do this when it's so difficult?

S: I had the honor of being invited to be an entrepreneur in residence at a VC firm, and I didn't even know what an entrepreneur in residence was. I had helped scale other operations before, and a VC was on the board of that operation, so when I left that company, that board member invited me to be an entrepreneur in residence

at his VC firm. In my year there, I started to understand what VCs were looking for when investing in a company, and I studied it and refined my own pitch. They funded me without a product, and I hadn't been a proven CEO yet—we call this “fundable from the deck.” I was very fortunate that they wrote the first check without even a product. The other advice I often give female entrepreneurs, especially, is to always be raising money when you don't need it. So when you're raising your A round, and you're starting to get term sheets, what I started to do was meet with my B-round targets, and now that I had term sheets, I could start to present the long-term vision and build a sense of urgency so they'd want to get in. When the B-round players were impressed, I'd say to them politely, “This round is pretty far along; I would love to chat with you early when we are ready for the B round.” Because I stayed in pitch mode and was raising the next round, by the time I raised my B round, I'd already screened and knew who I want to raise money from in the C round.

GIWPS: I know how much you value mentors and support. It made a difference when you started your company. Can you say a little bit about how you found mentors useful, both at the start and in scaling up?

S: Finding mentors is organic. It's sort of like dating—either it works or it doesn't. I always viewed it as a long-term relationship that goes both ways. I think that finding great mentors—where they learn from you and you learn from them—creates a symbiotic relationship that is geared for the long term. I very much like mentors who I know want to sponsor me and have my back, and vice versa—I do the same for them. It's about helping each other grow. Now that I'm a mentor, I'm so attracted to amazing millennial men and women who I learn from every day, because they help me grow as a leader. I see how their generation is leading, the questions they are asking, the innovation they are creating; it's very inspiring for me.

GIWPS: Do you think the legal, social, and economic environment is supportive of women entrepreneurs in tech? Have you seen changes over time?

S: I think the changes are coming in response to #MeToo. There is a lot of innovation coming from women around creating new funds—it's responding to the need. I do wish more of it came from men. With the corner-office leadership still 85 percent men, it would just take too long if it were just up to women. That applies to governments, nonprofits, and companies. I'm actually going to events with more male audiences because I'm trying to persuade more male leaders that we can't solve the gender issues without them truly leaning in and bringing women up. So, in terms of the legal, social, and economic environments, I still don't think there is enough happening there. In fact, one of the things we've started is blogging, where I interview male leaders to highlight what they are doing to support women. Because sometimes they are shy about it—they feel either embarrassed about it or worry that they will say the wrong thing. So I'm trying to say, “The more you show off, the more this will encourage other male leaders to follow.”



Tana Greene, CEO of Greene Group

In 1988, Tana Greene cofounded Greene Group, a national staffing company that grew to operate in more than 20 states. With over 30 years of experience in the industry, she saw firsthand the changing needs of the contingent workforce and understood the vital role technology must play moving forward. In 2017, she guided the company's transformation into MyWorkChoice, the contingent-workforce solution that makes flexibility work for companies and W2 employees. Her company has consistently been recognized as one of the top 100 fastest-growing woman-owned businesses in the United States.

Tana is the author of *Creating a World of Difference*, and she frequently speaks to audiences not only about her approach to business, but also about her own life story and experience with domestic violence.

GIWPS: Do you feel there are specific barriers you face, being a woman entrepreneur in a traditionally male-dominated field? This may be more specific to your latest business, or perhaps also applicable to your other business that you started.

Tana: I don't know why I keep landing in the men's world, but I do. I've been asked that question many times, and for me, I don't feel like I've encountered any barriers. Now, I read about the barriers all the time—for example, studies say only 2 percent of money from VCs goes to women-led businesses, and that needs to change. However, when it comes to financing and raising money, I didn't have any issues raising \$10 million, so it is a hard question for me to answer personally. I do recall the time when a woman wanted to start a business, she needed her husband's signature to sign off on a loan. Fortunately, that has changed. Yet, even though I do not believe I was facing barriers when starting my company and raising funds, it is possible that I was without my awareness. I was committed and nothing was going to stop me.

GIWPS: Do you think the way you started your first business changed your opinion on how to raise money and funding for your later businesses?

T: Absolutely. I gained experience along the way. For example, "Use other people's money, not yours" is a lesson learned. For most, using your own money initially isn't the smartest thing to do because then you're in a weak position when you do need it. How much stock you want to give up is both a business decision and a personal decision. We need more education for women around ways to finance your business. Men talk about this in the locker rooms or on the golf course; most women don't have natural forums to have those conversations. I now have a network that I can call for help—the issue is, nearly all of them are men. Most VCs today are primarily men. Until women start backing VC funds—and I hear more and more about

women working in these funds—we need to support each other. The more we do that, the more women will be on a level playing field when it comes to funding.

GIWPS: Over the years it seems like you have become a mentor to others, and I bet you probably also gained a lot of people who have become supportive in your career. Why did you decide to become a mentor to others? Have both men and women been equally helpful in this journey, helping you start your different businesses?

T: I want to mentor people—and I say people because it’s men and women, not just women—because if anybody calls and asks me for help, I’m willing to do it. Because if I call and want help, I’m hoping I get the same response, and I usually do. That’s what life is all about; it’s helping each other. Unfortunately, there seems to be a “woman versus woman” attitude that still exists. From my experience, when you reach a certain stature in your career, the competitive relationship disappears. But at that mid-level there is a hurtful culture of “I am not going to let you get beyond me. I’m not going to let you succeed me.” I see that a lot, and I don’t know why. In my journey, I’ve never had a successful man not help me—but I’ve had women not help me. So overall, I’ve had more success with male mentors and supporters, and I wish that was not the case. We need to remove the “woman versus woman” attitude at every career level.



Ting Shih, founder of ClickMedix

Ting Shih founded ClickMedix, an award-winning health-care technology enterprise to enable health organizations to serve more patients through its mHealth platform. She has implemented mHealth programs across 21 countries, improving the lives of approximately one million people in North America, South America, Africa, and Asia through financially sustainable health programs powered by ClickMedix technology.

The programs equip health workers, nurses, and rural physicians with smartphones and mHealth tablet kiosks to capture patient symptoms, images, and other related information for AI-facilitated assessments and personalized care, while complex issues are transmitted to specialists for expert diagnosis and treatment advice.

Ting was named World Summit Awards winner 2019, Young Entrepreneur of the Year 2018, and a Toyota Mother of Invention in 2015. She was the Cartier Women’s Initiative laureate 2012 for North America. She holds an MBA and MS in systems engineering from MIT. In addition, she holds a BS in computer science and MS in software design and management from Carnegie Mellon University.

GIWPS: Do you feel that there are specific barriers that you face, being a woman working in a traditionally male-dominated field?

Ting: Certainly, for sure. I say not just being female but also being younger. I think it's a combination of both. A lot of times, the initial perception is: you're a woman; you're probably not as technically savvy, whereas your male cofounder is your technical lead. That's certainly the perception. And the barrier I face as a woman founder is I have to recognize and address it. There's an initial perception barrier, and a subconscious communication barrier. By being young and female, a lot of times when I have conversations, the audience in the meeting might not look at me when they're talking back. Instead, they'd look at my other colleagues, either an older female or a male. I think it's subconscious, but I obviously see it. So that's certainly a symptom of this barrier.

In addition, I'm a sole founder, so investors or audiences might be looking for a cofounder. They don't think one person could do it all. On the funding side, I'm sure you've seen a lot of research that women founders don't get funded as much as male founders. For me, I wasn't trying to look for funding. Whereas I think for a lot of other male founders, finding financing is the first thing they have to do. And it also depends on the industry: If you're in biotech or need to run clinical trials, you have to get funded for your research in order for it to work. In software, you could bootstrap your company, find small amounts of funding, and continue to build the product. That's what I have done. It's not a traditional path, but I do think it's more of a common thought process for some of the female founders. The starting point is different. A lot of the male colleagues I know think, "I need to get funding. That's my first goal." While some of the female colleagues view it as, "I need to develop my product and service. That's my first goal." That drives different approaches and demeanors as we go about our respective businesses.

GIWPS: Why did you decide to bootstrap your business instead of finding funding elsewhere?

T: For me, it's more practical because it takes as much effort to get funding as building a product. Being a technologist, I can do a lot of the work myself, and I just need some support from software developers. So I don't think I needed much funding to get the minimal viable product going. Also, I find talking to investors very draining. First, you're discredited just for showing up as a solo founder, and then you have to try harder to establish yourself. Next, investors discount the value of your product, in the sense that males tend to exaggerate and make themselves sound a lot bigger than they are, whereas females often represent themselves lesser than what they are. So from the audience's perspective, the investors are always discounting whatever they hear. Because they're used to men exaggerating, so when they hear a female pitch her product, they're going to discount the value of her product.

GIWPS: How have mentors been instrumental in helping your business grow in scale?

T: In many aspects. Some mentors were instrumental in helping with the business model. Imagine starting a business—you have no idea how much you can charge your customers. There are many ways to figure out pricing. Mentors helped with their experiences and networks. They have other people I can talk to that have similar businesses. So it's gathering a lot of insights from multiple stakeholders

instead of just figuring out everything by myself, which would take even longer. They can provide insights to shortcut the thought process as to what the business model could be. Other mentors are helpful with operational issues, human resources issues, or accounting issues. The mentors that work well are the ones that have been through starting a business so they have people they can introduce me to. Some mentors are on the business development side, so they have potential customer contacts that they can introduce me to. And then the final type of mentor is focused on the product. Some are experts in mental health, in diabetes, or in the clinical aspect. So they're definitely very helpful. In addition, they don't charge consulting fees because they truly believe in your business and they want to help.



Tiffany Norwood, founder and CEO of Tribetan

Tiffany Norwood is a global serial entrepreneur whose career spans thirty years, seven start-ups, two public offerings, and over 50 countries. She started her first start-up as a teenager and had a patent by the age of 23. Her ventures ranged from the first one-strap backpack, to the automation technology behind self-install kits for broadband internet, to a virtual-reality gaming platform today. In her late twenties, she raised \$670 million to fund the first ever global digital satellite radio start-up, WorldSpace, which included XM Radio for the United States. Currently, Tiffany is the founder and CEO of Tribetan, an ed-tech company that teaches everyone the entrepreneurial and innovator skill sets. In this role, she speaks globally on the science of turning imagination into reality, leveraging the currency of faith in others and the natural connection that exists among the seven billion people in the world. Some of her past venues include the European Parliament, the U.S. Patent and Trademark Office, Cornell University, the Italian parliament, Global Entrepreneurship Week, and KPMG UK. Tiffany has an MBA from Harvard and a bachelor's in economics with a concentration in statistics and electrical engineering from Cornell University.

GIWPS: Over the years, you've been very active as an entrepreneur in the technology field. Were there specific barriers that you faced, being a woman starting all these businesses over the years? What changes have you seen?

Tiffany: Yes, yes, and yes! The challenges you face in day-to-day life in society are amplified when you're starting a business. As the only successful black female tech entrepreneur of my generation, I can say with certainty that a lot has changed. I remember being at a company where the network printers were called "Babe 1" and "Babe 2," and having no women or no people of color in the room. Those days are gone. I can also say with certainty that we have a long way to go.

I've been an entrepreneur since the 1980s, and there were a lot of challenges back then being a woman of color. Things have changed a lot over those 30 years, and we still have a long way to go. People talk about teaching more women to code or to study entrepreneurship, but I would say that many of the challenges lie more on the human side.

I think part of it is that society has been focused primarily on hard skills like coding. Women and people of color can learn how to code and understand systems, markets, and databases. I was a self-taught coder in the 1970s, and with that was able to get accepted into Cornell's College of Engineering as a computer science major. I have a friend who taught himself to code using pen and paper for years, until he was able to get a computer. And as for business skills—I have an MBA from Harvard. There were women and people of color in my 1994 cohort, and yet still few went on to start tech companies in the 1990s.

Where the chasm emerges is when we have to deal with all these other human factors as a woman entrepreneur. It made the truly brutal experience of doing a start-up crushing. If you're a white male and you're doing a start-up, it's hard. Then if you're a woman, there's sexism, stereotyping, and unconscious bias. I feel most people jump out of the race because of that. Say you're trying to raise \$100,000 and a guy has to go out and do 100 pitches to get that \$100,000. As a woman, you might have to do 250 pitches. And as a man of color, you might have to go out and tell the pitch 400 times, and then as a woman of color 1,000 times. I think so many people get overwhelmed with how bad this inflation factor is for race and gender, they give up and say it's too hard emotionally, spiritually—it weighs on their mental health. For me, it wasn't Cornell and Harvard that allowed me to win. It was that I decided that I was going to be the one to show it was possible, no matter what the cost for me personally.

GIWPS: What role did mentorship play in starting your businesses?

T: Mentorship matters a lot. In the 1980s, I had some mentors but nowhere near as many as my male counterparts. I think it's because being a mentor is a very intimate relationship. Especially when I was younger, most people in my tech entrepreneurship space didn't interact a lot with black women. Then didn't have friends or neighbors that looked like me. So there wasn't as much comfort in mentoring a woman of color. Who wants to have to reinvent the wheel? I don't mind making mistakes; I just don't want them to be commodity mistakes. Mentors do a knowledge transfer that is invaluable. I am so grateful for the ones that I have had over the years. And I enjoy tremendously mentoring the leaders of tech of all genders around the world. This is why I started Tribetan, to teach everyone, of every age, entrepreneurship and innovation literacy.

GIWPS: What recommendations do you have for women entrepreneurs in tech?

T: This is the advice I would give to any entrepreneur, because generally speaking, it's super hard doing a start-up. It's like being a new parent; it's going to be hard regardless of race, age, gender. So I would say to my fellow entrepreneurs: Develop your support system as soon as possible—people that can provide emotional support as you're going through this start-up journey. However hard you imagine it being, it's 50,000 times harder than that. It's relentless, it's stressful, you worry

about money, you get no sleep, and you have to compete on a high level consistently for three to five years straight before you see any sort of potential of being cash-flow positive. What I've observed most of the time is that products and companies don't fail; people do. If I had to give one piece of advice, it'd start there: have your supporters, your meditation practice to protect your mental health, a fitness habit like yoga, swimming, or running. Get all of that in place first.

Lastly, I would say to move away from pitching and more to storytelling. It is a persuasive narrative, not a pitch. People are starting to realize that more, but in the past they didn't. The one good thing about there not being an ecosystem and a platform when I started out was that you kept experimenting with what worked for your customers, your investors, and your market with no preconceived notions. I realized that storytelling was more effective, so I did things like improv classes and creative writing to become really comfortable with storytelling persuasively. And that was a main component of how I was able to raise \$670 million when I was in my twenties. We have some free tools on how to tell a persuasive story, including the three universal languages of persuasion, on the Tribetan website.

Appendix II: List of Resources

Organization	Website	State
Accelerators and Incubators		
Miller Center for Social Entrepreneurship	https://www.millersocent.org/	CA
Springboard	www.springboard.com	National
KILN Incubator	www.kilnincubator.com	Midwest
Social Entrepreneurship Accelerator at Duke University	www.dukesead.org	NC
Halcyon	www.halcyonhouse.org	DC
IncubateHER	www.chatham.edu/cwe/incubateHer	PA
1863 Ventures	https://1863ventures.net/pipeline	DC
Mentorship		
SCORE	www.score.org	National
CERESA	www.ceresa.com	National
Women Entering and Staying in Tech (WEST)	www.joinwest.org	National
Ellevate Network	www.ellevatenetwork.com	Global
Networks and Associations		
Chicago Innovations	www.chicagoinnovation.com	IL
Women Who Tech	www.womenwhotech.com	National
People of Color in Tech	www.peopleofcolorintech.com	National
Women's CEO Roundtable	www.womensceoroundtable.com	VA/National
Women Presidents' Organization	www.womenpresidentsorg.com	National
C200	www.c200.org	IL/National
Dreamers and Doers	www.dreamersdoers.com	National
Women in Technology International	www.witi.com	Global
Girl Geek	https://girlgeek.io	National
Capacity Builders		
Women's Business Development Center	www.wbdc.org	National
Women's Business Enterprise National Council	www.wbenc.org	National
SheWorx	www.sheworx.com	National
Association of Women's Business Centers	www.awbc.org	National
PowerLink	www.powerlink.org	PA
SheEO	www.sheeo.world	Global

Capacity Builders (continued)		
National Association of Women Business Owners	www.nawbo.org	National
HERimpact	www.herimpact.net	National
Riverside Center for Innovation	www.riversidecenterforinnovation.com	PA
U.S. Small Business Administration	www.sba.gov	National
Beacon	www.thebeacondc.com	DC
Funding and Grants		
Female Founders Fund	https://femalefoundersfund.com	National
Toyota Mothers of Invention	www.toyota.com/usa/toyota-effect/mothers-of-invention-1.html	National
SEED SPOT	www.seedspot.org	National
Marshall Memorial Fellowship	www.gmfus.org/transatlantic-leadership-initiatives/marshall-memorial-fellowship	National
USAID Global Development Lab	www.usaid.gov/GlobalDevLab	National
Rethink Impact	http://rethinkimpact.com	National
Vinetta	www.vinettaproject.com	National
Golden Seeds	https://goldenseeds.com	National
Mucker	www.mucker.com	National
Astia	https://astia.org	National

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