Creating Inclusive High-Tech Incubators and Accelerators:

Strategies to Increase Participation Rates of Women and Minority Entrepreneurs

An Introduction to the Challenge

Business incubators and accelerators have emerged as a popular strategy to support the growth of entrepreneurial ventures, especially in the high-tech sector (Anderson, 2012; Lewis, Harper-Anderson, & Molnar, 2011). They are designed to address the networking, education and capital challenges all entrepreneurs face. These challenges are most acute for women and minority tech entrepreneurs (Fairlee & Robb, 2008; Robb, Coleman, & Stangler, 2014), suggesting that incubators and accelerators could have the greatest impact on their ventures.[1] Yet, women and minorities are not participating in high-tech incubators and accelerators at the same rates as their white, male counterparts.

Given the growing commitment, by both public and private sectors, to increase the numbers of women- and minority-owned high-tech businesses, a critical step will be to make incubators and accelerators more inclusive of diverse entrepreneurs. In addition, because these organizations, particularly accelerators, are attracting many young entrepreneurs, the underrepresentation of minorities among the entrepreneurs they support is especially concerning given that 43 percent of millennial adults are people of color ("Millennials in Adulthood," 2014). Given this demographic trend, helping incubators and accelerators to become more racially inclusive is important to ensure that all future tech entrepreneurs are given the same level of support.

Many high-tech incubator and accelerator leaders convey that they would like to become more inclusive, but that they are unsure of how to do so effectively. This report hopes to address this situation by providing these leaders with a set of tools and models they can implement to become more diverse and inclusive. The report includes highlights from incubators and accelerators that are struggling with diversity issues as well as from those that have already implemented strategies that have created more inclusive organizations. We discuss the various barriers that prevent women and minority entrepreneurs from participating in high-tech incubators and accelerators and a set of recommended strategies to help eliminate the barriers.

Our findings were informed by a thorough review of the literature and empirical analysis of proprietary data, as well as interviews with 25 national and international entrepreneurship experts and 51 incubator and accelerator managers in late 2015 and early 2016.[2] The report is divided into four sections:

A NOTE ON TERMINOLOGY AND SCOPE

Since incubators and accelerators both support early stage businesses and increasingly offer similar resources for entrepreneurs, the distinctions between the two models are often overlooked. In this report, we begin to explore whether these distinctions lead to different outcomes and challenges associated with serving more diverse entrepreneurs, but we highlight barriers and solutions that are mostly generalizable between the two.

The terms incubator and accelerator do not refer to legal business structures and organizations self-identify as one or the other. Both incubators and accelerators provide entrepreneurs with a wide variety of resources such as mentoring, business education, networking, free or subsidized office space and access to capital. The International Business Innovation Association (InBIA), formerly known as the National Business Incubation Association (NBIA), provides the following description of the two types of organizations: "Incubators typically provide client companies with programs, services and space for varying lengths of time based on company needs and incubator graduation policies. Most accelerators take a group of companies, or a cohort, through a specific process over a previously-defined period of time, culminating in a public pitch event or demo day. Accelerators also generally make seed stage investments in each participating company in exchange for equity, while many incubators do not make this type of financial commitment ("Business Incubation FAQs," 2016)."

Many incubators are nonprofit organizations funded in whole or part by public-sector dollars and have economic development mandates that include job creation and serving diverse populations in their communities. Over 30 percent of incubators are affiliated with research universities and these incubators may also have mandates to successfully commercialize university intellectual property (Knopp, 2012). Accelerators, especially in the high-tech sector, are typically for-profit enterprises established with private-sector funds and are focused on investment returns (Dempwolf, Auer, & D'Ippolito, 2014). Incubators and accelerators continue to evolve. Some private accelerators behave more like early stage venture capital organizations, while many incubators are adding accelerator or pre-accelerator programs to prepare entrepreneurs for private accelerators in order to access equity.

It should also be noted that incubators and accelerators are distinct from co-working spaces, which provide shared working environments for entrepreneurs and other independent professionals or remote workers and typically do not offer other types of business development support (Spinuzzi, 2012), although this is changing. Within the tech sector, co-working spaces often focus on entrepreneurs in the business service sector (e.g., web design, IT service) that are not planning on raising capital. Co-working spaces were beyond the scope of research for this report and we leave it to future research to tackle inclusion issues in these organizations.

We use the term minority in this report to refer to all minorities as defined by the U.S. Census, which defines minorities as any race and ethnicity group other than non-Hispanic White.[3] We recognize that this broad definition of minority may mask differences in entrepreneurial inclusion in incubators and accelerators. Increasing participation rates of only one minority group obviously does not address the lack of support for other minority entrepreneurs.

How Inclusive Are Incubators and Accelerators?

In spite of government policies focused on increasing the rates of women and minority entrepreneurs over the last four decades,[4] they remain underrepresented in businesses overall. Of all businesses in the nation, only 20 percent are owned by women and only 18 percent are owned by minorities.[5] It is difficult to quantify entrepreneurship numbers in the loosely defined high-tech sector, but we estimate that women- and minority-owned businesses represent, respectively, 14 percent and 19 percent of all businesses.[6] Their representation in *high-growth*, high-tech firms is likely lower (Robb et al., 2014; Sohl, 2013). It is somewhat surprising that the percentage of high-tech businesses that are minority-owned is higher than for the share of all businesses, but this may be due to a relatively high percentage of Asian American entrepreneurs in high tech.

A lack of robust data on the businesses supported by incubators and accelerators prevents us from quantifying the precise participation rates of women and minority entrepreneurs in these organizations. However, anecdotally there is broad consensus that the participation rates of women and minority entrepreneurs in incubators and accelerators are relatively low, especially in the high-tech sector.[7] In addition, to increase the numbers of women- and minority-owned businesses in this sector, incubators and accelerators should have participation rates that exceed current ownership patterns.

Even within the high-tech sector, there is likely some variation in women and minority participation rates in incubators and accelerators. Biotech incubators, for example, may have a greater share of women and minority entrepreneurs than software-focused organizations. There may also be a difference in participation rates between incubators and accelerators. It is likely that incubators, because of their public funding and economic development mandates, have higher women and minority participation rates (as high as 25 percent on average, by some estimates) than accelerators. Most publicly-funded incubators are required to track and report the demographics of the entrepreneurs they serve to ensure that they are meeting their funding requirements.

Clearly, more robust data is needed to begin to better understand diversity trends in these organizations. InBIA is one organization that is trying to address this data gap. They have just launched an EDA-funded research project called the IMPACT Index, which will track detailed data on the demographics of businesses supported by incubators and accelerators as well as the demographics of these organizations' leadership teams. As InBIA President and CEO Kirstie Chadwick mentioned, "It is becoming increasingly important to track this data as incubators and accelerators continue to proliferate. There may also be important differences between incubators and accelerators in terms of diversity, but the only way for us to know for sure is by collecting data, which will also allow us to measure progress."

A recent ICIC survey of eight high-tech incubators and accelerators in the U.S. found that across all of the organizations 20 percent of the businesses supported were owned by women and 23 percent were owned by minorities.[8] However, this percentage varied across the organizations, from six to 42 percent for women-owned firms, and from 14 to 39 percent for minority-owned firms. The research also found differences in engagement: Women-owned and minority-owned businesses did not participate in the programming and resources offered by the incubator or accelerator to the same degree as their counterparts.

Both women- and minority-owned businesses supported by the incubators and accelerators also faced challenges accessing capital: While women-owned firms were more successful in raising equity than their counterparts, they received significantly smaller investments on average. Conversely, minority-owned firms were less successful in raising equity, but received greater investments on average than their counterparts, which may, counterintuitively, indicate a trend in underinvesting in minority-owned firms.[9] The ICIC findings suggest that in addition to participation rates, we should also be concerned about whether women and minority entrepreneurs who are accepted into incubators and accelerators are getting the same level of support (and benefits) as their counterparts.

AN INCUBATOR AND ACCELERATOR TYPOLOGY

As they proliferate, incubator and accelerator models are also evolving. The primary mission of the incubator and accelerator can be used as one organizing principle to differentiate among three types of models: sector, demographic and place. High-tech incubators and accelerators are sector-specific: Their goal is to develop businesses within a certain industry or sector. Demographic incubators and accelerators focus on businesses owned by women, minorities, or veterans. Place-based incubators and accelerators are focused on business development within a certain neighborhood to foster local economic and community development.

Recently, there has been an increase in demographic incubators and accelerators, in part because of the lack of participation of women and minority entrepreneurs in incubators and accelerators. According to InBIA, the majority of incubators (69 percent) do not focus on any particular demographic group, but nine percent of incubators are focused on women entrepreneurs, nine percent on Hispanic entrepreneurs, eight percent on African American entrepreneurs and four percent on Native American entrepreneurs (Table 1). We identified 27 demographic incubators and accelerators currently operating across the U.S. (Table 2).

The leaders we interviewed at women- or minority-only incubators and accelerators feel their demographic focus allows them to attract entrepreneurs who may not be interested in incubation programs that serve all entrepreneurs. In this type of incubator and accelerator, all aspects of the program, including their curriculum and culture, are designed to meet the specific needs of their target group of entrepreneurs. As David Walling, an Advisor from Women's Startup Lab, a women-only accelerator in Silicon Valley, told us, "The current accelerator model isn't encouraging enough women, so Women's Startup Lab is organized around how women like to learn and grow: around shared learning and continuing curiosity."

Place-based incubators and accelerators are created to revitalize distressed urban areas by supporting local entrepreneurs, which often includes a relatively high number of minorities. Because of the local economic development mission of these organizations, they tend to serve businesses in a more diverse set of industries in order meet the needs of the entrepreneurs that exist in the surrounding community. For example, Fairmount Innovation Lab (FI-Lab) is an incubator and accelerator that was launched in 2015 in the Uphams Corner Dorchester neighborhood of Boston as part of a place-making initiative. FI-Lab draws on the cultural assets in the Fairmount Corridor to catalyze the launch and development of creative enterprises in the area. It offers a customized curriculum and workshop offerings, professional expertise and services, including assistance with access to capital and co-working. FI-Lab had deliberately adjusted its programming and curriculum in order to serve the entrepreneurs in the local community and has a diverse representation of entrepreneurs (approximately 89 percent are women-owned or led and 90 percent are minority-owned or led). BLUE1647, a Chicago-based entrepreneurship and technology innovation center that is well known for its diversity, provides another example. BLUE1647 was founded in August 2013 with the purpose of teaching technology skills to students and providing acceleration services to tech startups in the underserved south and west sides of Chicago (Dalke, 2014).

Although there is a lot of attention given to establishing incubators and accelerators in inner cities, anecdotally we know that most of these organizations are still located in higher-income, less diverse communities. We analyzed the location of incubators in nine states (California, Louisiana, Massachusetts, Michigan, Missouri, New Jersey, New York, Washington and Wisconsin) in 2015.[10] We identified 261 incubators, of which only 24 percent were located in an inner city.

Table 1. Demographic Groups Supported by Incubation Programs

Demographic Focus	Percentage
No Special Focus	69%
College/University Students	12%
Hispanics	9%
Women	9%
African Americans	8%
Social Entrepreneurs	7%
Low-income Entrepreneurs	6%
Native Americans	4%
Youth	4%
Foreign/Non-domestic Entrepreneurs	3%
Other	2%

Note: Incubators may focus on more than one demographic group and percentages do not sum to 100%. Source: Knopp, L. (2012). *NBIA Research Series: 2012 state of the business incubation industry.* National Business Incubation Association, p. 12.

Table 2. Incubators and Accelerators in the U.S. with Demographic Focus

Name	Location	Year Established
Women-Focused Incubators and Accelerators		
2.7.0. Accelerator*	Fayetteville, AR	2015
Avion Ventures	San Francisco, CA	2014
Bad Girl Ventures	Cincinnati and Cleveland, OH	2010
Equita	San Francisco, CA	2014
Hera LABS	San Diego, CA	2012
MergeLane	Boulder, CO	2014
Project Entrepreneur	New York, NY	2015
Prosper Women Entrepreneurs	St. Louis, MO	2014
The Refinery	Westport, CT	2014
Springboard Enterprises	Washington, DC	2000
Women Empowered for Entrepreneurial Excellence (WEEE)	McKees Rocks, PA	2012
Women Innovating Now (WIN) Lab	Boston, MA and Miami, FL	2013
Women's Business Incubator	Seattle, WA	2012
Women's Small Business Accelerator	Westerville, OH	2012
Women's Startup Lab	Menlo Park, CA	2013
Womensphere Venture Incubator	New York, NY	2015
Minority-Focused Incubators and Accelerators		
Manos Accelerator	San Jose, CA	2013
Minority Business Accelerator (at Cincinnati USA Regional Chamber)	Cincinnati, OH	2003
Minority Business Accelerator (at Greenville Chamber)	Greenville, SC	2014
NewME	San Bruno, CA	2011
University of Toledo Minority Business Development Center	Toledo, OH	2009
Veteran-Focused Incubators and Accelerators		
Bunker Labs	Chicago, IL and other locations	2014
Honor Courage Commitment Veteran Incubator Program	Dallas, TX	2011
Prosper	New York, NY	2015
Venture Hive Fort Walton Beach	Fort Walton Beach, FL	2015
VetLaunch Business Accelerator Program	New Orleans, LA	2011
Vet-Tech	Sunnyvale, CA	2012

* Includes a focus on women, minorities and veterans

Barriers for Women and Minorities in High-Tech Incubators and Accelerators

Our research suggests that various factors are preventing more women and minority entrepreneurs from participating in high-tech incubators and accelerators. We group them into four types of challenges: recruitment, selection biases, program design, and culture. Recruitment and selection biases may prevent diverse entrepreneurs from gaining access to high-tech incubators and accelerators, while program design and culture may not make them want to.

The underlying cause for some high-tech organizations, especially private accelerators, may be a lack of interest in intentionally supporting more diverse entrepreneurs. In order to create inclusive organizations, it takes deliberate actions on the part of incubator and accelerator managers to recruit women and minority entrepreneurs and to create programs that meet their needs.

RECRUITMENT CHALLENGES

Ineffective recruitment by high-tech incubators and accelerators may be the biggest cause of the relatively low participation rates of women and minority entrepreneurs. Some incubators and accelerators simply don't recruit any entrepreneurs. Competitive high-tech accelerators, for example, attract entrepreneurs from across the country without actively recruiting. Some organizations also point to the relatively lower numbers of women and minorities in high tech as an excuse for not being able to attract more diverse entrepreneurs. Our research finds sufficient evidence to counter the argument that this is a fundamental barrier. As highlighted in the next section, numerous high-tech incubators and accelerators have successfully recruited diverse entrepreneurs.

Recruitment can be hindered by incubator and accelerator management's limited networks and lack of knowledge about how best to find diverse entrepreneurs. This may be especially true in incubators and accelerators that do not have diverse staff. Outreach to entrepreneurs often relies heavily on the manager's networks and there is a tendency for people's networks to resemble their own race and gender (Trimble, 2013). There is no publicly-available data on the gender or race of incubator and accelerator management, but anecdotal evidence suggests that there are few women and minority managers in high-tech accelerators, while the diversity of high-tech incubator management and staff may be higher.

“Some incubators and accelerators have realized that a passive approach to recruitment does not create diverse entrepreneur pipelines. As Paul Riser, Managing Director at TechTown, an incubator and accelerator in Detroit, stated: “People won't just come in the door; you sometimes have to go out and connect with underrepresented populations so they know you are a viable resource who wants to help. Some incubators just don't think about actively going beyond their immediate linkages and trying to get others in their door.” ”

Chris Cusak, Manager of VilCap Communities-Global at Village Capital, a global accelerator program based in Washington, D.C., candidly admitted, “We've gotten better at improving inclusivity in our company pipeline, but there's still a long way to go, and we're constantly building connections and finding new channels to make sure we're uncovering high-potential companies everywhere.” Or as Dustin Curzon, Executive Director of 36 Degrees North, a new incubator in Tulsa, Oklahoma, fretted, “The easy thing would be to network with people I know... and people will end up looking just like me.”

Tapping into different minority business communities requires tailored approaches. As Albert Shen, National Deputy Director of the Minority Business Development Agency (MBDA), noted, “Different ethnic communities operate and communicate differently in the business environment. Incubators and accelerators are often introduced as a one-size-fits-all solution. A better approach would be to create models that can be customized to connect with the minority community. And a good starting place is to initiate a dialogue with the minority business owners, taking the time to become more knowledgeable about their needs.”

As Rafael Caamano, the Site Manager of University of Central Florida Winter Springs Incubator, a mixed-use incubator (i.e., it includes entrepreneurs from various sectors, including technology) that is part of the University of Central Florida Business Incubation Program, says, “I think understanding different entrepreneurs and different cultures while having the ability to interact and relate to their needs and the way they operate their businesses is very important. For example, I understand the Hispanic market, how they like to be advised, and understand the level of customer service expectation they like to receive. And I also learned the same of our Indian entrepreneurs. It's important to switch gears depending on where people are from.”

Additionally, for some incubators affiliated with research universities, it can be challenging to support diverse businesses when the pipeline of entrepreneurs coming through student programs and the university-based tech transfer and entrepreneurship office is not diverse. This may be driven in part by the fact that women and minorities are still underrepresented in certain disciplines, such as STEM fields, that are supporting the pipeline of entrepreneurs into affiliated incubators and accelerators.

BIASES IN APPLICATION AND SELECTION PROCESSES

The inherent bias against women and minority entrepreneurs in the application and selection processes of some incubators and accelerators is another important barrier. Acceptance into many incubators and accelerators is increasingly competitive. For example, according to a 2014 study by F6S, an online network of incubator and accelerator programs, the average acceptance rate for programs across the world that ran their application process through F6S was four percent (Butcher, 2014). The well-known, high-tech accelerators Y Combinator and Techstars, for example, have acceptance rates below three percent (Altman, 2014; Cohen, 2016).

Incubators and accelerators typically use selection panels to decide which ventures to support and the composition of these panels can create biased outcomes. Many incubator and accelerator managers noted that finding diverse selection panelists and mentors, whom are often a crucial part of the interviewing process, is particularly challenging. Less diverse panels can be affected by what noted entrepreneurship expert Susan Marlow, a Professor at Nottingham University Business School, called the "People Like Us" theory – the idea that people are more likely to identify with and select those that look and act like themselves.

Additionally, an ingrained cultural idea of what successful high-tech entrepreneurs look like may predispose selection committees to choose entrepreneurs that fit a certain mold (Brooks, Huang, Kearney, & Murray, 2014). Research shows that women in business are often tied to unconscious associations with less credibility and a lack of legitimacy (Ahl, 2006; Thébaud, 2015). As Susan Marlow noted in an interview, "The way we make sense of women isn't conducive to what boards of incubators or accelerators are looking for." This sentiment was echoed by Sarah Kaplan, a Professor at University of Toronto Rotman School of Management, who added, "Implicit bias against female entrepreneurs plays out all along the system."

"Accessing capital is especially important for high-growth, high-tech firms because of the significant capital they require and yet women and minority entrepreneurs may become trapped in a vicious cycle: Studies show they are less likely to obtain capital than their white, male counterparts (Fairlee & Robb, 2008; Robb et al., 2014), which may make them less competitive for some high-tech accelerators."

The 2014 Diana Report finds that only 15 percent of companies receiving venture capital investment had a woman on the executive team, and only three percent had a woman CEO (Brush, Greene, Balachandra, & Davis, 2014). The 2010 Venture Capital Human Capital Report finds that only 17 percent of private, early stage internet companies receiving venture capital in the first half of 2010 have a minority on the founding team, and only 13 percent of founders of internet firms receiving venture capital are minorities, with only one percent being Black or African American (CB Insights, 2010). As a result of this capital challenge, private high-tech accelerators, whose reputations are built on ventures graduating with large infusions of venture capital, may find women and minority entrepreneurs less attractive than their counterparts. In addition to serving startups, these accelerators also serve as brokers for venture capitalists and other investors (Dempwolf et al., 2014).

The pitch process may be especially biased against women entrepreneurs. As Kaplan and Vanderbrug (2014) argue in a recent article, "An important part of the process entrepreneurs must go through to obtain an investment from a venture capitalist is to 'pitch' their idea in person. But women have been socialized to be less comfortable pitching, and we all have been socialized to perceive women less favorably in those contexts" (p. 38). Research has shown that investors consistently prefer men to women entrepreneurs in the pitch process, even when the content of the pitch is the identical (Brooks et al., 2014). As Sarah Kaplan noted, "If you have equal numbers of women and men applying to accelerators, you get fewer women through the door ... And then once women are in the accelerators, they're not getting funded... partly because it's pitch-based, partly because funders have particular views of who is a high-tech entrepreneur."

In turn, some incubators may feel compelled to focus on attracting businesses with the most job-creation potential to meet the demands of their public funders, instead of trying to increase the number and diversity of the entrepreneurs they support. As David Fonseca, the Incubator Manager at the Coastal Bend Business Innovation Center in Corpus Christi, Texas, noted, performance requirements from funders can dictate the companies they choose: "We know we have to take the companies that will be the biggest winners, and that pressure doesn't always allow us to be as inclusive as we would like to be."

PROGRAM DESIGN

The "one-size-fits-all" design of many incubator and accelerator programs may fail to address the specific needs of women and minority entrepreneurs and unintentionally make the programs less attractive for these entrepreneurs. Some incubator and accelerator features, like limited hours of operation or having programming scheduled in the evening, may especially deter women with children. Donna Harris, Co-founder and Co-CEO of 1776, a global incubator and seed fund based in D.C., noted that her most precious hours as a mother are between 5:00-8:00 PM, but most networking or investor meetings take place during that time. She says that incubators and accelerators "can't just say 'Suck it up and come.' That's what makes women say 'Well, I don't even want to go down that path.'"

Accelerator programs in particular often require the entrepreneur to be located on site, with the expectation that those who live farther than a reasonable driving distance will move away from home for the duration of the program, which is often several months. This creates a barrier to participation for those with family obligations, which predominantly affects women, as well as those with lower incomes, which disproportionately affects minorities. In the words of William Crowder, formerly from Dreamit, a leading global startup accelerator founded in Philadelphia, and now a co-founder of his own fund, "The accelerator model has had issues because it's not made for everyone. It's not for someone who's 50 plus or lives in a different part of the country. It's for someone who can drop everything, be there for three months. That's what it's made for. The number of African Americans and Latinos that can live that experience is smaller than the general population of African Americans and Latinos who own businesses. So you cut the pool dramatically when you add in these constraints." In response to this challenge, Dreamit has evolved its model to enable partial virtual participation that addresses these constraints.

A lack of women and minorities on program delivery teams or serving as mentors and trainers may also deter women and minority entrepreneurs. A diverse set of mentors and trainers may not only create an environment that is more welcoming to women and minority entrepreneurs, but it can also make them more comfortable in seeking certain advice from those mentors. Vicki Saunders, Founder of SheEO, a Toronto-based global accelerator for women-led ventures, said that during a recent experience she had as an Entrepreneur-in-Residence (EIR) for a different accelerator, women were more comfortable asking her for advice about certain issues that they didn't seem to be comfortable asking male EIRs. "I just finished an EIR position and the male EIRs didn't hear the same questions I did because women [entrepreneurs] didn't ask them. When I'm the EIR, I get different questions." Other experts mentioned that this may be the case for minority entrepreneurs as well.

CULTURE

The macho, exclusive culture often associated with high tech (Baird & Mendonca, 2016), and especially high-tech accelerators, may be the biggest deterrent to women and minority entrepreneurs. Some accelerators promote their exclusivity, which makes the programs seem inaccessible and may end up discouraging more diverse entrepreneurs from applying. Women in particular may be turned off or intimidated by what they perceive as a "boy's club" and a hyper-competitive, 24/7 culture. People are drawn to spaces and opportunities where they feel comfortable, where there are other people similar to themselves, and where they feel they might fit in. Women and minorities may also be concerned that in this type of environment they will be overshadowed and given less support. Paul Riser from TechTown said that part of their current effort to open up their doors was driven by a realization that minorities may have felt excluded. "Being a city that is 80 percent plus African American, we know there are a large number of entrepreneurs, or potential entrepreneurs, that we could do a better job of engaging and attracting. Maybe they haven't had the best experience in the past, or they don't feel invited, or they don't feel there are people they directly identify with in the entrepreneurial ecosystem."

Strategies to Increase Participation Rates of Women and Minority Entrepreneurs in High-Tech Incubators and Accelerators

We recommend a set of four strategies to increase participation rates of women and minority entrepreneurs in high-tech incubators and accelerators that address the barriers outlined in the section above:

- expand recruitment networks through diverse leaders and partners,
- create diverse selection committees and adjust the selection process,
- intentionally design programs for women and minority entrepreneurs, and
- create an inclusive culture.

These straightforward strategies offer a playbook for organizations interested in attracting and effectively supporting more diverse entrepreneurs. We profile several high-tech incubators and accelerators that have already implemented some of these strategies to create more diverse cohorts of businesses. With these strategies, women and minority entrepreneurs can fully benefit from the sector-specific incubator model.

We believe that making high-tech incubators and accelerators more inclusive is a better approach to increasing the numbers of women- and minority-owned high-tech businesses than creating demographic-specific incubators and accelerators (i.e., those focused on women or minorities). The incubator and accelerator model was created to support sector-specific businesses and one can argue that it is most effective when doing so. Businesses within the same sector can develop powerful networks and spark shared innovation, and the incubator or accelerator should attract more targeted capital, which is essential for the capital-intensive, competitive high-tech sector.

While demographic incubators and accelerators also facilitate innovation and access to capital, they may not be as advantageous in terms of creating new sector-specific networks for entrepreneurs, which are critical for growth because they provide businesses with access to broader markets. For example, research shows that the financial performance of minority-owned firms is negatively impacted when they are not connected to broader networks and markets but rather operate strictly within racial or ethnic enclaves (Aguilera, 2009; Bates & Robb, 2008; Shinnar, Aguilera, & Lyons, 2011). While no definitive studies are available that show the same effect on women entrepreneurs, research does suggest that women's lack of access to certain male-dominated networks, such as those that dominate the venture capital industry, makes it more difficult for women to access the capital needed to grow their businesses (Brush, Carter, Gatewood, Greene, & Hart, 2004).

"Separate incubators and accelerators for women and minorities may not be equal. As Donna Harris from 1776 argues, "Because of the problem with diversity, we're seeing an increasing number of dedicated programs to women and minorities, but I am concerned we're creating a segregated community, because success is a gender- and race- and age-balanced community. And I don't think that's like trying to put a man on the moon. It's an achievable objective if we make it so. I'm concerned we're going down a path of short-term solutions and that might make the problem worse.""

According to Eric Mathews, CEO and Founder at Start Co., which has three accelerators in Memphis, Tennessee, including one specifically for women-led tech startups, "We take an approach inclusive for all populations. We run all accelerators at the same time and have about 80 percent overlap in programming. We find that separate but equal is not equal at all." And as Ben Johnson, Vice President, Programs at BioSTL, an entrepreneur support and bioscience cluster development organization in St. Louis, Missouri, states, "For innovation-focused organizations, including incubators, it should not only be about women- and minority-focused programs, but also about doing more intentional specific engagement to communities to bring them into your existing programs, so as to not create separate, siloed networks."

Because this paper pertains specifically to incubators and accelerators that support high-tech businesses, the strategies described here may not be applicable to all incubators and accelerators. Additionally, we do not differentiate across minority groups, which may face different challenges and require different interventions.

EXPAND RECRUITMENT NETWORKS THROUGH DIVERSE LEADERS AND PARTNERS

Our research suggests that incubators and accelerators with diverse management teams are more successful in attracting diverse entrepreneurs in part because the managers have diverse networks, but also because they are successful role models.

Julie Lenzer, Director of the Office of Innovation and Entrepreneurship at the Economic Development Administration (EDA) and former Executive Director of the Maryland Center for Entrepreneurship (MCE), agrees: "People go where they see themselves. When I was running [MCE], they attracted more women entrepreneurs. Since I've left, the number of women has diminished. I'm not giving myself the credit, but it's about having that role model so entrepreneurs can see themselves in the mix." Likewise, Kai Wright, Vice President at minority-owned entertainment company Atom Factory, which launched Los Angeles-based accelerator Smashd Labs to an overwhelming applicant response, notes, "Entrepreneurs look at Troy Carter, our founder (a prominent music producer and investor), and the success he's had as a minority and that in itself attracts other minority entrepreneurs. It's the idea that 'you look like me, you get me, you can help me.'"

These role models are especially vital in high-tech sectors. As Darlene Boudreaux, the Executive Director of TECH Fort Worth in Texas, an incubator which has about 25 percent women and minorities, said, "Because we're a tech incubator with a lot of medical device and pharmaceutical companies, most clients are former executives launching their own companies and there are fewer minorities and women entrepreneurs in this pool. I think what works is that I'm a woman and my assistant director is Hispanic, and we've both been tech entrepreneurs. That in and of itself tells people that we don't discriminate and that our doors are open to diverse entrepreneurs."

Opportunity Hub, now TechSquare Labs, a technology incubator, corporate innovation lab, co-working space and seed fund in Atlanta, and TechTown both stress the importance of having a diverse leadership team that reflects the diversity they want to attract in their entrepreneurs. Rodney Sampson, Co-founder and Chairman of Opportunity Hub, whose leadership and advisory team consists of over 50 percent women and minorities, says they are intentional about curating mentors, advisors and stakeholders that look like their target market of diverse entrepreneurs because "that sets the tone for the ecosystem itself ... the technology world moves very fast but you have to be intentional about your leadership reflecting diversity and inclusion starting at the top." According to Sampson, Opportunity Hub's entrepreneurs include approximately 90 percent minorities and 70 percent women.

Similarly, Paul Riser of TechTown notes that, "TechTown's leadership and board have been intentional about hiring minorities to place into leadership roles." Of the TechTown leadership team, 67 percent are women and 40 percent are minorities, and of TechTown's staff overall, 58 percent are women and 50 percent are minorities. Riser estimates that about 70 percent of the entrepreneurs they serve are minorities and 50 percent are women.

As noted above, anecdotal evidence suggests that high-tech accelerators may have less diverse leadership and management than high-tech incubators, but there are some accelerators creating a different model. 500 Startups, a global venture capital fund and startup accelerator in Silicon Valley, has a strong track record of serving both women and minorities (classes are made up of 30-50 percent women founders and approximately 15 percent African American founders and 10 percent Hispanic founders). As Christine Tsai, Founding Partner, said, "We're still not where we want to be, but we have a diverse investment and leadership team compared to a lot of accelerators, especially concerning women. Half of our management team is women, and almost half of our investment team is women, all of which have investment decision-making power and authority to make judgement calls on investment."

At Start Co., four out of the five team members are women or minorities. Eric Mathews says, "The diversity of our team shows others that we're living our values. We think that resonates with our applicant pool and the Memphis community at large." The senior leadership at Village Capital is 50 percent women or minority, including two women that manage all of their programs and who are the main points of contact for their entrepreneurs.

Partner with Organizations that Serve Women and Minority Entrepreneurs

In addition to intentionally creating diverse leadership and management teams to expand networks, partnering with organizations that specifically serve women and minority entrepreneurs can help high-tech incubators and accelerators reach a more diverse group of entrepreneurs.

POTENTIAL PARTNERS FOR DIVERSITY

Some organizations that serve high-growth, high-tech women-owned businesses include:

- Astia,
- Society of Women Engineers (SWE),
- National Center for Women & Information Technology (NCWIT), and
- Women in Technology International (WITI).

Organizations serving high-growth, high-tech minority-owned businesses include:

- Black Founders,
- Society of Hispanic Professional Engineers (SHPE),
- MAES: Latinos in Science and Engineering, and
- Stanford Latino Entrepreneurship Initiative.

Other organizations such as the National Association of Women Business Owners (NAWBO), Women's Business Councils (regional affiliates of the Women's Business Enterprise National Council), Minority Supplier Development Council affiliates, the Urban League, and demographic-focused Chambers of Commerce also serve women and minority entrepreneurs across all sectors.

Build Pipelines with Corporates, Universities, Co-Working Spaces and Diverse Cities

Other effective strategies to increase diversity include building pipelines through high-tech corporations, universities and co-working spaces to recruit more women and minority entrepreneurs, and targeting cities with higher minority populations. These strategies seem to have been adopted thus far by more incubators than accelerators, again reflecting the fact that many high-tech accelerators don't actively recruit.

For example, BioSTL, which supports the development of a bioscience cluster in St. Louis, developed a program to build a more robust pipeline of women and minority bioscience entrepreneurs. The program, called the BioSTL Inclusion Initiative, identifies high-potential women and minorities and creates a systematic pathway for them to create new ventures. The program starts by raising awareness among diverse communities, including women and professionals of color who work at larger corporations both within and outside the biosciences, about entrepreneurship opportunities. It then provides those who are interested in entrepreneurship with training to build entrepreneurial skills, culminating in an intensive 10-week entrepreneur training program at another incubator, a partner in the program. In 2014, the first year of the Inclusion Initiative, over one third of the 30 participants in the 10-week incubator training program were women and minorities that came through the Inclusion Initiative pipeline. Finally, the program connects participants with necessary resources, including access to networks, facilities and capital, to position them to launch new ventures. In 2014, the program awarded $25,000 in grants to four minority- and women-led businesses and provided seed funding for the launch of a women's accelerator investment fund.

Rev1 Ventures, an incubator that operates a seed stage venture development organization in Columbus, Ohio, also cultivates its own pipeline through a program called Concept Academy, which attracts more women and minority innovators by working with idea and early stage founders to hone their entrepreneurial ideas to form high-growth ventures. Rev1 works closely with university and community partners, such as the Women's Small Business Accelerator and the Young Entrepreneurs Academy, to reach diverse entrepreneurs for this program. Of the entrepreneurs participating in Concept Academy, over 40 percent are women and minorities. Rev1 leadership estimates that roughly the same percentage continue into engagement and, ultimately, funding by Rev1.

Incubators affiliated with universities have an opportunity to build larger pipelines of diverse entrepreneurs by partnering with programs that engage diverse students. For example, the Sid Martin Biotech Institute, an incubator at the University of Florida in Alachua that has 38 percent women entrepreneurs, has formed close ties with three University of Florida entrepreneurship programs, all of which are run by female students. These programs were intentionally created by the University of Florida to encourage entrepreneurship among women on campus, and the Sid Martin Biotech Institute Director Mark Long reports that about half of the women-led companies in the incubator come through this pipeline.

EnterpriseWorks is an incubator owned and operated by the University of Illinois at Urbana-Champaign. It works in multiple ways with the more academic side of the university to build a pipeline of women entrepreneurs for the incubator. For example, they work closely with the university's tech transfer office to increase the representation of women coming through this pipeline and have a close partnership with the Technology Entrepreneurship Center at the engineering school, which often serves as the front line for students interested in entrepreneurship. EnterpriseWorks also partners with student groups such as the Society of Women Engineers and Women in Computer Science to educate women on campus about entrepreneurship as a viable career path. Given that 20 percent of the incubator's companies are started by students or recent alumni and an additional 59 percent were started in a university department or lab ("About," 2016), focusing on engaging women on campus is an important strategy for increasing the participation of women in the incubator.

Colleges and universities with high concentrations of minorities may also be a useful channel in reaching minority entrepreneurs. For example, Historically Black Colleges and Universities offer an opportunity for incubators and accelerators to reach potential African American entrepreneurs. For William Crowder, partnering with these schools is a "no-brainer" for incubators and accelerators looking for a diverse pipeline of entrepreneurs. He cautions, however, that "it's one thing to show up and give a presentation and it's another to be there on a regular basis." It takes an investment of time and effort to help students really understand the value and process of incubators and accelerators. While Dreamit does not track the race of their entrepreneurs, since making an intentional effort to increase the diversity of their cohorts they have seen a dramatic increase of founders of color in their application pool.

Incubators and accelerators could also create co-working spaces to develop a more diverse pipeline of potential ventures for their organizations.[11] Although robust data is lacking, those we interviewed suggested that in general, co-working spaces attract diverse entrepreneurs. The Emerging Technology Center (ETC), an incubator and accelerator in Baltimore, and Opportunity Hub, now TechSquare Labs, in Atlanta each operate a co-working space that serves as a pipeline for women and minority entrepreneurs into their incubator and accelerator programs. ETC has an estimated 30 percent women and minority representation among the companies it supports overall, with its Accelerate Baltimore accelerator program having 65 percent women and minority representation. Opportunity Hub's entrepreneur participants include approximately 90 percent minorities and 70 percent women.

Incubators and accelerators could also increase the diversity of their entrepreneurs by developing relationships in cities that have more diverse populations or higher rates of women or minority business owners. For example, 500 Startups in Silicon Valley, which as mentioned previously has strong diversity numbers, has done recruiting road shows and information sessions in places like Atlanta, Oakland, Chicago, and the Southeast to reach a broader pool of entrepreneurs. This strategy may be especially relevant for incubators and accelerators that are located in smaller cities.

CREATE DIVERSE SELECTION COMMITTEES AND ADJUST THE SELECTION PROCESS

Developing more diverse selection committees in high-tech incubators and accelerators could also help to create more diverse cohorts of businesses. As Julie Lein, President and Co-founder of Tumml, a San Francisco-based accelerator, noted, “It's important to bring in selection committees that look different and have diverse perspectives because it's valuable to have gender and racial diversity represented in the selection process.” Tumml's selection committee is made up of Tumml's leadership team, which has a majority of women and almost half minorities, as well as mentors and board members that are also diverse. While gender and race is not something Tumml screens for specifically, Lein reported that 76 percent of the businesses they support have women or minorities on their founding team. ETC, the incubator and accelerator in Baltimore, has a leadership team that manages the selection process and it is comprised of 75 percent women and 25 percent minorities. Their incubator includes 30 percent women and minority entrepreneurs, and their Accelerate Baltimore program includes 65 percent women and minorities.

Such diversity should help remove biases against women and minority entrepreneurs in the selection process as well as biases against the types of products and services being pitched. Christine Tsai from 500 Startups emphasized the importance of having diverse selection panels because sometimes it can be difficult for the committee members to relate to a business whose product or service is oriented at a different group of people. Some successful companies that have gone through 500 Startups had minority founders and products oriented at minority customers that initially faced skepticism by people who did not understand the business opportunity. For example, “one company did hair extensions for the African American market, and people outside of the 500 Startups team didn't understand it or asked ‘what kind of market is this?'” but that company was accepted and became very successful. Being deliberate about identifying such preconceptions during the selection process both by making an effort to have diverse selection panels and by intentionally being open to companies serving markets where the team may not have first-hand knowledge has helped 500 Startups to combat biases in the selection process. Regardless of the selection committee demographics, the participants can also be trained about subconscious biases against age, race, gender and background that play into their selection process.

Adjust Criteria and Streamline Application and Selection Process

Incubators and accelerators that adjust their selection process and criteria may be more successful in attracting women and minority entrepreneurs. As many organizations have already figured out, streamlining the process is important for all entrepreneurs. For example, as Deb Tillett, President of ETC in Baltimore, stated, “In our old days, there was an arduous application process. Entrepreneurs had to submit an application and go before the board, and subsequently the pipeline and growth was stagnant. Now the process has been simplified. If you have an innovative idea or business model that's tech enabled, and we can help you, you're in.” TECH Fort Worth, where 25 percent of clients are women or minorities, does not use application forms or a selection committee. Prospective clients instead speak directly with Darlene Boudreaux, the Executive Director, or her assistant director, and then they make the decision whether to accept them or not. Boudreaux explained that “because my assistant director and I are former entrepreneurs, we don't believe application forms or a bureaucratic application process work for entrepreneurs. The process is a barrier, and removing it is probably one reason why we don't have too many barriers here.”

EnterpriseWorks, an incubator at the University of Illinois Urbana Champaign Research Park, adjusted their selection process to make it more inclusive to women entrepreneurs. Members of their leadership team, which is made up mostly of women, decided to start accepting applications from consulting ventures, which had not traditionally been considered, after noticing that sometimes women science entrepreneurs start consulting companies first in order to validate their work and generate a reliable source of income before later developing riskier but more scalable product-based technology businesses. There are now several examples of women-led businesses that have participated in the EnterpriseWorks incubator that started as consulting companies before transitioning into product-based businesses with proprietary technologies, and currently 16 percent of companies at EnterpriseWorks are female-founded.[12]

> ***“To attract more women entrepreneurs, high-tech incubators and accelerators should also consider removing specific application criteria, a strategy employed by some women-focused organizations. Specific application criteria may deter women entrepreneurs from applying unless they believe they are 100 percent qualified (Desvaux, Devillard-Hoellinger, & Meaney, 2008; Kay & Shipman, 2014; Mohr, 2014).”***

Creating diversity targets is more controversial and our research suggests that it may not be necessary if seeking diverse entrepreneurs is an intentional strategy, the organization has effective recruitment strategies, and the selection process isn't biased. For example, Site Manager Carol Ann Dykes of the University of Central Florida Central Florida Research Park Incubator in Orlando, a technology incubator where one-third of CEOs are women and an additional one-third are minorities, says, "Attracting women and minority entrepreneurs is not a specific target of ours. It may be that we are able to attract high numbers *because* we don't focus on that. Our companies are here because they meet our other criteria like having a viable business venture with potential to grow and scale. There's not a box to check if they are minority- or women-owned on the application. We don't look at that; we only look at their business and its potential." For many incubators, as discussed above, job creation has to be their primary selection criteria because that is what is being demanded by their public funders. Private-sector accelerators need to focus on a venture's ability to attract equity. But in both cases, they should at the least make sure their selection process is gender or race neutral.

DESIGN PROGRAMS FOR WOMEN AND MINORITY ENTREPRENEURS

Rather than creating an incubator or accelerator program first and then trying to find women and minorities to fit into it, high-tech incubators and accelerators should consider designing their programs at the outset with women and minority entrepreneurs in mind. Established incubators and accelerators can still modify their programs to better fit the needs of women and minority entrepreneurs.

Flexibility in Training Time, Child Care Support

To create more flexible programs that meet the needs of women and minority entrepreneurs, as noted above, some organizations have started to offer a combination of virtual and in-person participation so that entrepreneurs do not have to move to participate in the incubator or accelerator. Within "traditional" three-month accelerator programs, some accelerators feature programs where entrepreneurs are at the location for just a portion of the period and the rest of the programming is virtual or remote. Many of these offer concentrated onsite weeks during the three-month period.

The Points of Light Civic Accelerator, an accelerator program and investment fund focused on scalable civic ventures, developed a model where entrepreneurs are onsite five days each month for three months, with each onsite session in a different U.S. city ("Civic Accelerator," n.d). Director Megan Christenson says that this flexible (non-residency) model not only attracts more women and minority entrepreneurs from across all U.S. states, but it also makes better business sense for a venture: "If a venture's mentor network, investors and early customers are in Kansas City, for example, why would you pull them out of the community that is best positioned to support them? It doesn't make sense to uproot them." Over 50 percent of ventures in Points of Light are led or co-led by women and about one-third are led or co-led by minorities.

> ***"We want the founders to be here for the duration of the program, but we don't make it a requirement that they permanently relocate. A lot of founders go back and forth depending on their personal situation. We try to be as supportive as possible and not require them to be here all the time."***
>
> ***— Christine Tsai, Founding Partner, 500 Startups***

1776 offers flexibility in the hours in which they deliver content to better appeal to entrepreneurs with children. Donna Harris says, "For us, it's thinking about when and how we deliver programming and making people aware that we focus a lot on late breakfast meetings, lunch meetings, and mentor roundtables that wrap up by 5:00 or 5:30 so that people don't always have to weigh missing a full day with their child against building their company." Other accelerators also offer onsite child care or other amenities specifically for mothers. 500 Startups, for example, created a mothers' room at the accelerator for a pregnant entrepreneur and her co-founder. The entrepreneur later wrote a blog post about the mothers' room and how important it was to her.

Tailored Curriculum and Resources

There are several examples of high-tech incubators and accelerators that offer a tailored curriculum or resources for women and minority entrepreneurs in addition to programming for all entrepreneurs. This allows them to cater to the specific needs and challenges of women or minorities without segregating them into entirely separate organizations. The EnterpriseWorks incubator at the University of Illinois Research Park, for example, collaborates with the College of Engineering and Office of Technology Management to offer a National Science Foundation-funded program called Accelerating Women And underRepresented Entrepreneurs (AWARE), which offers resources that make their current entrepreneurial ecosystem more accessible to all. These resources include a dedicated entrepreneur-in-residence (EIR) familiar with the needs of those from underrepresented groups, small proof-of-concept grants, and targeted mentoring, training and networking opportunities. Since its official launch in 2015, the program has been actively expanding the pipeline of female entrepreneurs into the Research Park's ecosystem: More than 100 women have participated in workshops and events, a dozen entrepreneurs have applied for the grant program, and the dedicated EIR has met with 15 aspiring female entrepreneurs.

Dreamit, a global accelerator program founded in Philadelphia, has an established program for women entrepreneurs, Dreamit Athena. The participants in this program are part of a regular Dreamit class. Dreamit Athena started in 2015, backed by a Pennsylvania state grant, and it brings a minimum of four women-led startups into each class. Dreamit Athena businesses receive all the same programming as their counterparts, but also have curriculum, mentors and speakers tailored to the challenges faced by women entrepreneurs, with the focus of the program on increasing the probability of female founders getting funding.

Similarly, Start Co., an organization in Memphis that operates three accelerators, created an accelerator solely focused on women entrepreneurs. While the three accelerators operate separately, only 20 percent of the curriculum is specific to each accelerator and they share the other 80 percent of the curriculum. By making an explicit choice to focus on women as a starting place, founders in Start Co.'s 2015 accelerator programs were 37 percent minorities and 38 percent women overall.

Other incubators reminded us that more basic strategies, such as providing bilingual resource materials, were also essential in supporting diverse entrepreneurs. For some incubators with limited resources, they relied on partners. For example, University of Central Florida Winter Springs Incubator relies on Hispanic Business Initiative Fund (HBIF), a Florida nonprofit organization, to provide bilingual assistance to Hispanic entrepreneurs. In the incubator, 44 percent of entrepreneurs are minorities.

Include Diverse Mentors and Trainers

Including more diverse mentors and trainers could also help high-tech incubator and accelerators attract and support more women and minority entrepreneurs for the reasons noted in the barrier section above.

For example, most of the mentors at Opportunity Hub, now TechSquare Labs, in Atlanta, whose leadership and mentoring team consists of over 50 percent women and minorities, are successful entrepreneurs themselves. The organization also identifies mentors based on their specific business expertise (e.g., securities law), which helps them find even more diverse mentors.

Paul Riser at TechTown agrees, noting that many potential mentors "reside within the constructs of corporate America, and many simply don't understand the value, breadth of wisdom and insights they can offer to entrepreneurs." TechTown strives to reach out to diverse mentors at these corporations, and often finds that potential mentors are eager to get involved but simply did not know how to do so, or, like women and minority entrepreneurs, did not think an incubator or accelerator was the right fit for their operational experience or domain expertise.

Start Co. in Memphis admits that it is difficult for them to find diverse mentors for high-growth tech startups because there are few success stories overall and even fewer women and minority startup successes in technology. However, Start Co. addresses this challenge in the interim by reaching out to minorities and women that are successful in specific business fields like marketing or accounting to participate as mentors. Start Co. has successfully been able to achieve around 25 percent representation of women and minorities in mentor roles.

The diverse leadership of Atom Factory's Smashd Labs accelerator (the three-person management team is made up of two African American men and one Asian American woman) has helped them to find diverse mentors. Kai Wright said, "It hasn't been a challenge for us to find diverse mentors. I think we're lucky in that way. I'm not sure if it's because of who Troy Carter, our founder, is or who Atom Factory is connected to. All the mentors know one of the three of us on the management team. The three of us have a great network based on our backgrounds. Our venture partner comes out of investment banking, I come out of advertising and PR on the agency side, and Troy is Troy, so he has people who want to be a part of whatever he's doing."

Remove the Pitch Process?

> ***"Some high-tech incubators and accelerators are creating new funding models to address capital access issues faced by women and minority entrepreneurs, including removing the pitch process from investment decisions."***

For example, Village Capital, a nonprofit that operates a global accelerator program based in Washington, D.C. and which is working deliberately to close the resource gap that women entrepreneurs face (Baird, 2015), started the Village Capital Peer-Selected Investment Model, where the entrepreneurs in the cohort make investment decisions by evaluating each other at the end of the program ("About Us," 2016). They have found that this model reduces the venture capital gender bias. About 36 percent of their investments using this model are in women-led companies, which is significantly higher than the national average of three percent (Brush et al., 2014). In addition, many incubators utilize angel investment funds to connect their entrepreneurs to investors. Given their higher representation of women and minorities (versus private accelerators), incubators may be more effective at funding more diverse entrepreneurs.

CREATE AN INCLUSIVE CULTURE

> ***"High-tech incubators and accelerators need to be mindful about their culture and the messages they are sending regarding inclusivity and diversity."***

If an organization's marketing materials and messaging do not display any women or minorities or perpetuate the perception of a culture that does not resonate with women and minorities, this will reinforce a feeling that they do not belong. Demographic incubators and accelerators are particularly sensitive to the communication issue and offer important suggestions for change. For example, the program director of MergeLane, a Boulder-based accelerator for women-led ventures, said, "If the accelerator is portrayed as a part of 'bro' culture or male-dominated culture in videos, pictures, and marketing, that will discourage women from wanting to even apply. It's important to make an effort to think about how you represent your accelerator verbally and visually and what type of entrepreneurs will be attracted to that representation. It might discourage women from applying." Likewise, SheEO's founder notes, "Look internally at the culture of your organization. What messages are you sending? Don't start your speech to businesses with, 'How many people slept less than six hours last night?' and consider it a badge of honor and think that kind of thing will attract women." Incubators and accelerators should also highlight features of their incubators like program flexibility and design that may be a draw for women and minority entrepreneurs.

High-tech incubators and accelerators also can improve their inclusive image by being intentional about the way they talk about diversity. Simply saying that a program is diverse is not enough to attract more women and minority entrepreneurs. Conversely, if women and minorities are portrayed in communication materials as symbols of diversity rather than as an integrated part of a community, it will also create a feeling of exclusion. As Susan Marlow noted, "If you're constantly recognized as the token it only reinforces the feeling that you don't fit in the organization." Instead, the organizations should focus on making the business case about diversity—how diversity of businesses within incubators and accelerators helps all businesses become more successful. For 1776, which has over 40 percent representation of women and minorities, they communicate externally and internally that diverse teams often generate higher returns on investment and have greater success overall.

> ***"We're trying hard to make sure that in our education curriculum we're teaching about how diversity isn't something you do to be politically correct, it's something you do to build a more scalable, successful business from a monetary perspective."***
>
> *— Donna Harris, Co-founder and Co-CEO, 1776*

In addition, incubators and accelerators should promote their own successful women and minority entrepreneurs as a way to inspire others. This is a strategy implemented at the Sid Martin Biotech Institute. According to Mark Long, "One of our most successful graduates is a biotech company run by a woman who has been extremely active in doing outreach to young women to encourage them to consider entrepreneurship. When women in their twenties listen to her talk about how she grew a three-person business in a small lab to a 90-person company listed on NASDAQ, they are inspired. When I go out and talk about the incubator I just don't have the same effect in inspiring young women as this successful entrepreneur does, because other women see and hear her and say, 'That could be me.'"

TECH Fort Worth employs a similar strategy. Darlene Boudreaux says, "The very large and visible success we've had is our outreach strategy. Last year a Hispanic-owned pharmaceutical company that we've worked with since 2009 was sold to AstraZeneca for $2.7 billion. It was the first biotech company to go public in Texas in 10 years, and now AstraZeneca is considering a several hundred employee facility in Fort Worth. This entrepreneur's success shows other minority-owned businesses that they can do well and are welcome at TECH Forth Worth because he proves it."

For some organizations, small changes have made a big difference. For example, the University of Central Florida Winter Springs Incubator established an informal shared lunch program in response to the feedback that their Hispanic entrepreneurs came from a culture where they did not like to eat alone. As Rafael Camaano says, "Providing the little things that connect entrepreneurs to their culture is really important."

Finally, holding public events or opening up their facility for public use can help incubators and accelerators to cultivate a culture of inclusiveness and attract more women and minority entrepreneurs. At TechTown in Detroit, Paul Riser says, "We are very intentional about our outreach and saying 'our doors are open.' This extends to events. In fact, we're a great partner to our network and say, 'Hey, not only does TechTown deliver events in our space, but we want other partners to deliver events as well.' We want to be open, inclusive, and inviting for a measurable 'network effect' and positive impact." Opportunity Hub, now TechSquare Labs, also uses public events as an important outreach tool, hosting over 200 free events per year of varying sizes. The University of Central Florida Winter Springs Incubator also invites their community friends and partners to seminars and workshops where they introduce them to the incubator and their programs.

Final Thoughts and Policy Implications

Incubators and accelerators provide the type of support most needed for all entrepreneurs: networks, business education and access to capital. Yet, women and minority entrepreneurs are not participating in high-tech incubators and accelerators at the same rates as their white, male counterparts. To increase the numbers of women- and minority-owned businesses in the high-tech sector, this needs to change.

Our research finds that high-tech incubators and accelerators have unintentionally created barriers to more diverse participation that include limited or ineffective recruitment, a potentially biased selection process, program designs that do not accommodate needs of diverse entrepreneurs, and a culture that is at best not attractive and at worst intimidating to diverse entrepreneurs. While many of the high-tech incubators and accelerators we analyzed are committed to becoming more inclusive, they also admit that it is challenging. We offer a set of strategies, with best practice models, that can be implemented to make these organizations more inclusive and more effective:

- expand recruitment networks through diverse leaders and partners,
- create diverse selection committees and adjust the selection process,
- intentionally design programs for women and minority entrepreneurs, and
- create an inclusive culture.

The funders of incubators and accelerators could also do more to create diversity incentives. On a national level, the U.S. Economic Development Administration (EDA) and Small Business Administration (SBA) are already making concerted efforts to do this. For example, the Regional Innovation Strategies (RIS) Program led by the EDA's Office of Innovation and Entrepreneurship supports multiple grant opportunities including the i6 Challenge, which funds proof-of-concept and commercialization centers including incubators and accelerators in order to spur innovation capacity-building activities while promoting inclusion. Part of the evaluation criteria for grant funding includes both the strength of outreach plans to populations and communities that are underrepresented in innovation and entrepreneurship, including women and minorities, as well as metrics to measure the effectiveness of that outreach ("Regional Innovation Strategies Program," n.d.). Similarly, the SBA's Growth Accelerator Fund Competition, which awards funds to accelerators, incubators, co-working spaces and other models, deliberately seeks out those that are run by and support women and other underrepresented groups ("Office of Investment and Innovation Resources," n.d.).

It is in the economic interest of cities and states to ensure that all entrepreneurs have equal access to the support available to them to help their companies grow and create jobs. Governments could increase the impact of high-tech incubators and accelerators in their communities by funding only those organizations that are implementing the strategies outlined in this report. They could also marshal significant resources to increase the awareness about the incubators and accelerators in their cities or states. Private-sector investors interested in increasing the diversity of high-tech ventures could also target their funding to organizations actively implementing the strategies outlined above. They could also require that the incubators and accelerators they support are inclusive of women and minorities, and refuse to fund them if they are not. In turn, universities can do more to build larger pipelines of diverse entrepreneurs by creating programs that engage diverse student entrepreneurs and encourage more women and minorities in technology-related disciplines.

The recommendations and strategies set forth in this report offer a playbook for creating more inclusive high-tech incubators and accelerators. Hopefully, the documented barriers that exist for women and minority entrepreneurs in the high-tech sector will provoke a greater urgency for change in these organizations. New efforts to collect data on the diversity of incubators and accelerators provide a promising new tool to track the progress being made toward creating a more inclusive high-tech sector.

Endnotes

1 While there is no definitive research proving that incubators and accelerators improve the survival and success rate of startups overall (Fetsch, 2015; Konczal, 2012), recent studies find that incubators and accelerators seem to have the greatest impact on women- and minority-led ventures (Amezcua, 2010; Amezcua & McKelvie, 2016; Whitt, 2014).

2 All quotes and information from incubator and accelerator experts and managers cited in this report, unless otherwise noted, come from telephone interviews conducted by ICIC staff.

3 The term minority defined by the U.S. Census includes the following groups: Hispanic or Latino, American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and Some Other Race, including Two or More Races.

4 The U.S. Small Business Administration's (SBA) Office of Women's Business Ownership and the U.S. Department of Commerce's Minority Business Development Agency (MBDA) were established in 1979 and 1969, respectively, in response to executive order and are dedicated to increasing the representation and supporting the growth of women- and minority-led businesses in the U.S. through the advancement of support programs and policy ("About Minority Business Development Agency," n.d.; "Office of Women's Business Ownership," n.d.).

5 U.S. Census Bureau, Survey of Business Owners (2012), for privately-held firms with paid employees.

6 U.S. Census Bureau, Survey of Business Owners (2012), for privately-held firms with paid employees; ICIC analysis. "High-tech" sector defined by Haltiwanger, Hathaway and Miranda (2014). Minority represents all minorities as defined by the Census and ownership representation varies by category (e.g., two percent for Black or African American; 13 percent for Asian).

7 The data that exists on incubators and accelerators is inconclusive. For incubators, studies by Alejandro Amezcua using 2009 data of all incubators in the U.S. reported that women-owned firms represented only six percent of incubator businesses (Amezcua & McKelvie, 2016), while minority-owned firms made up less than one percent (Amezcua, 2010). A more recent study (Whitt, 2014) surveyed 141 businesses across 25 incubators and found that women accounted for 44.7 percent of survey respondents. We were able to find only two data sources on women representation in accelerators (to our knowledge, no data is available on the share of minority-owned businesses in accelerators). International accelerator data collected by the Entrepreneurship Database Program at Emory University from 3,113 early stage ventures (including nonprofits) that applied to 13-18 global accelerators in 2013, 2014 and early 2015 reports that 17 percent of the ventures had all-women founders. When they analyzed the top three founders, they found that half of the ventures reported having at least one woman founder (Roberts, Peters, Koushyar, & Lall, 2015). The Global Accelerator Network, an organization that serves over 70 accelerators globally, reported that a recent survey of their U.S. accelerators showed 52 percent of the businesses they support have at least one female on the founding team.

8 The minorities include 11 percent Asian, five percent Hispanic or Latino, three percent Black or African American, two percent Some Other Race, one percent American Indian or Alaska Native, and one percent Native Hawaiian or Other Pacific Islander.

9 For example, research on minority-focused venture capital funds found that they achieve higher rates of return than the industry as a whole by investing in fewer firms, those with a higher probability of success (Bates & Bradford, 2007). The same phenomenon may be happening in incubators and accelerators.

10 The states were chosen at random to represent different geographies within the U.S. We utilized state incubator associations and searches using public search engines to identify the incubators.

11 Other incubators and accelerators are adding co-working spaces for reasons other than to increase diversity.

12 A 2014 Paypal study that surveyed women entrepreneurs found that consulting was the most common industry for both aspirational entrepreneurs and current owners (O'Malley, 2014).

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