BTM

BLACK TECH MECCA

PRESENTS

BLACK TECH ECOSYSTEMS

A PROPOSED FRAMEWORK FOR
DEFINING, ASSESSING, & DEVELOPING
BLACK TECH COMMUNITIES

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FOREWORD

When I moved to Chicago, the Black community was facing severe socio-economic challenges. More than a third of its population was living under the poverty line, and 25% was unemployed -- making it the highest for Black people among the nation's five most populous cities. Nestled inside this community was a highly active Black tech ecosystem with dynamic educators, students, professionals and innovators that were driving community initiatives to engage Black people in tech, and create companies that challenge pervasive narratives about our contributions and capabilities.

Invigorated by this, I began to engage, observe and listen to the perspectives of different leaders and voices in the space; I wanted to understand how Chicago's Black tech scene was faring and whether the leaders I met with believed Chicago had the potential to become a major black tech hub. As the 4th most economically powerful city in the world, with the 6th fastest growth rate of tech jobs, and a large influential black nucleus that some refer to as the Black capital of America, Chicago has the trappings of a special city that inspires powerful ideas that can change the world. Most unanimously agreed that it did. Yet when I inquired about whether we were making any progress toward that reality, their conviction weakened as they could not provide empirical evidence to support their stances -- the same rang true for me.

At that point, it became clear that we could push as hard as we wanted toward our potential, but if no one was keeping score of our progress (or lack thereof), we'd never arrive. We needed a mechanism to evaluate the health of Black tech communities and track their progress overtime. Thus, Black Tech Mecca was born.

Living in the Information Age means living in a world driven by data. We ought to leverage its power to drive our communities forward and capitalize on the endless possibilities it presents. The stubborn challenges with making tech accessible to the Black community are known. What we are focusing the discussion and action on, is the role data plays in building our ecosystems; thoughtful data allows us to level the playing field and tell more nuanced, dynamic stories about our communities. We conducted this research to better understand the past, present and future state of our ecosystem. We want to know when the community is on the right or wrong course, and whether the numerous efforts and investments are actually paying off. Most importantly, we want to know whether we are making the kind of impact that would last for generations. Right now, we don't have those answers, but we are eager to seek them out.

Our aspiration for this initiative is that it will enable us to create places where black people are empowered to leverage technology, to shape their future with their own hands and contribute unique value to the technological revolution taking place. These places are rich with access, connections, collaboration, and value our contribution as **consumers and producers.**

Our hope is that our efforts can eventually serve as a blueprint for not only evaluating success, but achieving it in Black tech ecosystems around the world.

FABIAN ELLIOTT
Founder & CEO, Black Tech Mecca

ABOUT THIS REPORT

This report provides data and a framework to assess the current state of Black tech ecosystems (BTE) in regions across the United States. It was produced as part of a collaborative research project between Black Tech Mecca leaders and staff, the State of the Black Tech Ecosystem (SBTE) advisory board, and the research team at the Nathalie P. Voorhees Center for Neighborhood and Community Improvement at the University of Illinois at Chicago. The intent was to accomplish three goals:

GOAL ONE

To develop a new SBTE assessment framework and identify metrics for monitoring the vitality of Black tech ecosystems over time.

GOAL TWO

To test the SBTE assessment framework on the city of Chicago and gather data to generate an inaugural national and Chicago SBTE reports.

GOAL THREE

To leverage the SBTE reports to devise strategies that increase support for driving Black tech growth in Chicago and other cities in the United States.

To achieve these goals, our team drew on existing research, multiple data sources, and insights from a variety of people. We specifically sought the input of Black professionals working in technology-related sectors to identify characteristics of a vibrant Black tech ecosystem. We also utilized the wisdom of those who study advanced tech ecosystems to develop a framework that works to define and assess the vitality and nuances of Black tech ecosystems nationwide.

WHAT IS A BLACK TECH ECOSYSTEM?

It is the Black micro-ecosystem of the larger tech community that faces its own unique challenges and has its own unique potential. Black communities often have nuanced supports for entrepreneurship that function as informal business incubators (Greene & Butler, 1996). In terms of the BTE, we found that these informal supports for entrepreneurs often extend to support and engage Black individuals operating in the tech sector. These BTE supports typically include professional and affinity groups embedded in tech companies, as well as individuals, institutions of higher education, government, private foundations, and community-based organizations that share similar values and a vision for a more equitable technology landscape. Please see the “What Is a Black Tech Ecosystem” section of this report for a more in-depth discussion.

What follows is much like tech – it’s emerging, innovative in design, and forward thinking.

EXECUTIVE SUMMARY

The Black community is now a significant driver in the tech economy, representing nearly **$1.2 trillion in total annual buying power.** Yet, when it comes to working in the tech field, Black people are often least represented among people of color in both corporate employment and technology entrepreneurship (Barr, 2015; Beasley, 2011). Data in this report suggests that Black underrepresentation in tech is not merely a pipeline problem. Consider these statistics:

16% While more Black students are getting degrees in computer science and engineering, only 16 percent of these graduates are working in tech jobs (Bui & Miller, 2016).

7% Black employees are 14 percent of the private workforce but only 7 percent work in tech (US Equal Employment Opportunity Commission, 2016).

Most Black tech workers are underrepresented in most major tech companies (DeAmicis & Carson, 2014)

2% Only 2 percent of all tech firms have Black CEOs – the lowest rate among people of color (Annual Survey of Entrepreneurs, 2014).

High Black women in tech have to prove themselves more than others, contributing to a high rate of exit from tech fields and jobs (Hill, Corbett, & Rose, 2010).

Black Tech Mecca believes that changing these statistics requires a deep understanding of the Black tech ecosystem (BTE).

This report builds on existing studies and academic literature to suggest three (3) pillars that we believe are critical in shaping and growing a vibrant BTE, namely, *academic, corporate, and entrepreneurship (ACE).*

ACADEMIC

includes both traditional education (e.g., K-12, colleges and universities) and training (e.g., vocational, continuing education). Both build skills, impart knowledge and generate new ideas – all critical in developing and sustaining a strong pipeline of Black talent.

CORPORATE

provides employment opportunities and ladders to climb. It also includes thought leaders that can change a culture and create the right environment for Black professionals and other people of color underrepresented in the industry.

ENTREPRENEURSHIP

creates its own jobs, opportunities for advancement plus jobs for others, taking risk at every step. Entrepreneurs also can be "disruptive" in ways that can help take corporate and academic pillars in new directions, and hopefully in ways that are mutually beneficial and that further grow the tech ecosystem.

WHAT IS A BLACK TECH ECOSYSTEM?

A Black tech ecosystem is a Black micro-ecosystem of the larger tech community that faces its own unique challenges and has its own unique potential.

It consists of Black individuals operating in the tech sector along with the groups and companies that support them. The BTE is a tech ecosystem that engages the broader Black community as producers, service providers, and consumers, and in which, every member has the potential to grow as the ecosystem grows.

The term ecosystem is not new. In the business world, an ecosystem is generally viewed as group of people interacting with other people and things, and with some sense of purpose. This notion of being connected and interactive is important when describing a dynamic sector like technology, particularly considering how Black technology professionals and communities often must work to navigate longstanding systemic barriers to equitable access to entrepreneurial markets (Butler, 2005). An ecosystem perspective works to ensure we maintain a holistic perspective of our communities which includes tech and non-tech workers across age, gender, national origin, profession, and class.

Feld (2012) suggests that successful technology ecosystems require an array of supports and stakeholders including entrepreneurs, mentors, investors, service providers, and universities among others. Similarly, the Kaufmann Foundation prescribes four key indicators of entrepreneurial ecosystem vibrancy which include:

DENSITY
FLUIDITY
CONNECTIVITY AND
DIVERSITY

(Bell-Masterson & Stangler, 2015).The following list synthesizes insights from both Kauffman and Feld into a prescribed set of elements for a vibrant BTE:

DENSITY

a critical mass of Black start-ups and entrepreneurs as well as Black-owned tech companies

FLUIDITY

sufficient opportunities for Black workers to advance by moving around in the region

CONNECTIVITY

strong connections between Blacks in tech, their projects, and resources

DIVERSITY

variety of employment options across multiple economic specializations accessible to Black people to either work in a tech occupation or the tech industry

CULTURE

collaborative and risk-taking with networking opportunities for Black people in tech or those interested in entering the field

TALENT

a sufficient number and variety of Black people prepared to work at all levels of the ecosystem

MENTORS

a variety and availability of Black practitioners in tech to support and advance Black people in all aspects of the BTE

INFRASTRUCTURE

easy to access, uniform broadband and Wi-Fi infrastructure in all communities in the ecosystem

FUNDING/INVESTMENT

a growing number and variety of investors, and the amount being invested in Black tech start-ups, entrepreneurs, and firms, and in education to increase Black representation in the talent pool

REGULATORY ENVIRONMENT

"race neutral" policies and programs, whether for large firms or start-ups, and evidence that Black founders in tech are equally benefiting from them

INCUBATOR/ACCELERATOR SPACE/TECH HUBS

variety of options that are accessible to Black people in terms of location and price

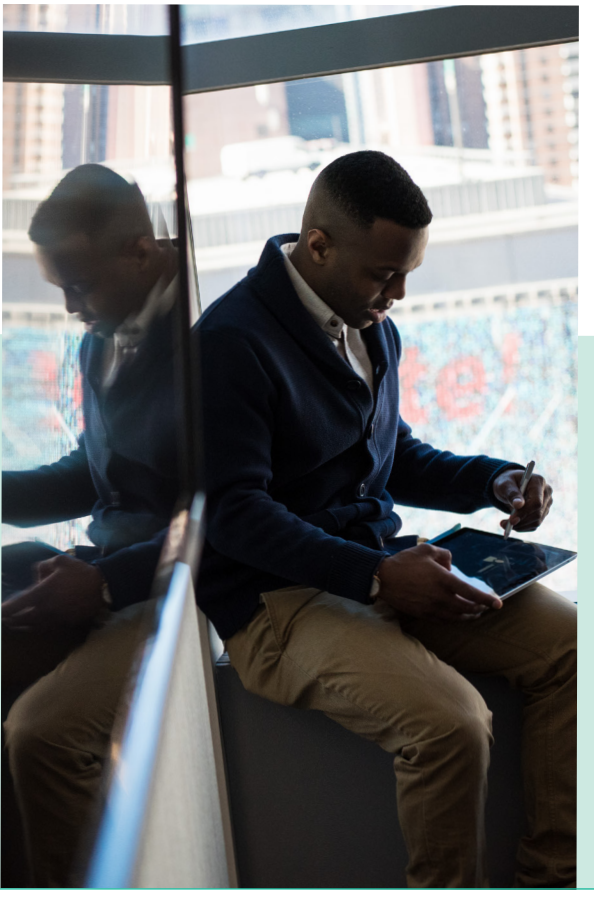
MOBILITY

evidence of Black people employed in tech advancing up the career ladder (positions and income)

ACTIVE EXIT MARKETS

healthy level of activity among investors investing and reinvesting in Black tech firms, start-ups, and entrepreneurs

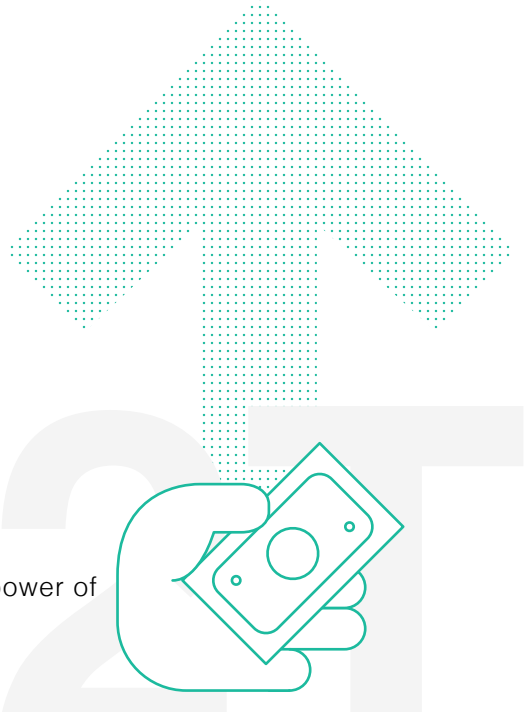
While all the above are critical in sustaining and growing a tech ecosystem, there is limited information directly focused on how the experiences, relationships, and contexts of Black technology workers and entrepreneurs and how they collaborate within a BTE along these dimensions. This report provides a framework for future investigations and offers an immediate call-to-action around the use of data to change the current paradigm.



HOW ARE BLACK COMMUNITIES ENGAGED IN TECH NOW?

It depends on how you look at it. In 2015, a Nielsen report highlighted Black consumers' "unprecedented impact" across television, music, social media, and on social issues (Nielsen, 2015). A year later, honing in on Black Millennials – a demographic that constitutes roughly 1 of 4 Black people –a Nielsen report stated that "a decade of economic and educational prosperity propels Black America's viral vanguard, led by 11.5 million digitally empowered persuaders" (Nielsen, 2016). Nielsen (2016) also found that Black millennials are trendsetters in mobile internet use and that the "demographic trends combined with the power of social media have collided to empower an increasingly educated, affluent, and tech-savvy Black consumer base."

In practical terms, at 14 percent of the population, Black consumers represent an annual buying power of $1.2 trillion and that is growing. And they are quickly closing the digital divide (Wilson, 2015).



$1.2 TRILLION
the growing buying power of Black Consumers

However, when we look at tech producers, including those who develop the social networking and shopping apps Black consumers use, Black-owned firms and entrepreneurs have very little share of the innovation markets (Nager, Hart, Ezell, & Atkinson, 2016), and industry leaders employ few Black technology workers. A 2016 report from the US Equal Employment Opportunity Commission (EEOC) found the following:

7% 2% 1%

Compared to overall private industry in the US, the high-tech sector employed a smaller share of Black Americans (7% in tech compared to 14% in the total private sector), Latinos (8% tech to 14% total), and women (36% tech to 48% total). White people were the largest share of both (69% tech to 64% total).

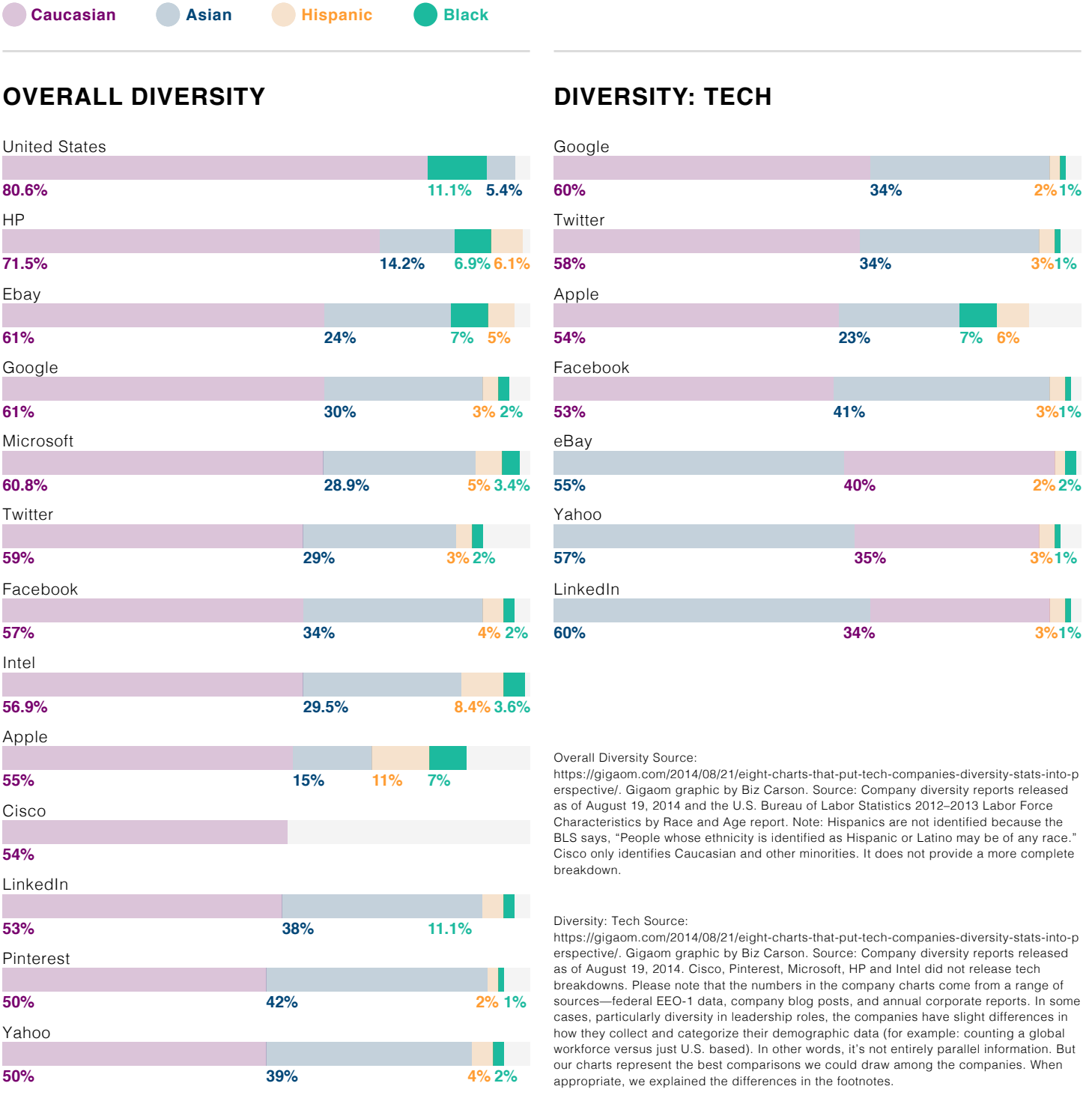
In the tech sector nationwide, White people are represented at a higher rate in the Executive category (83%) when compared to the Professional category (68%), while people of color are represented at significantly lower rates in the Executive category than in the Professional category; Black Americans (2-5%), Latinos (3-5%), and Asian Americans (11-20%).

In Silicon Valley, most Executives are White (57%) followed by Asian American (36%) and Latino (2%). Less than 1 percent were Black (US Equal Employment Opportunity Commission, 2016).

Research looking specifically at the gender gap in tech found that the proportion of all women holding computing jobs in the US has decreased from 35 percent in 1990 to 26 percent in 2013, which is likely a result of bias in the workplace pushing them out rather than leaving by choice. Black women more so than other women - 77% compared to 65% - reported having to “prove themselves” by providing more evidence of competence than others.

Similar patterns of inequity emerge when looking at individual tech companies, where Black communities continue to be underrepresented overall and in tech-specific jobs (See Figure 1). Black women in particular are among the most underrepresented and least compensated demographic groups in tech companies, and unfortunately, this inequitable pattern extends to lack of funding and support for Black women owned startups (Finney & Rencher, 2016).

FIGURE 1: Tech Employment Diversity by Company

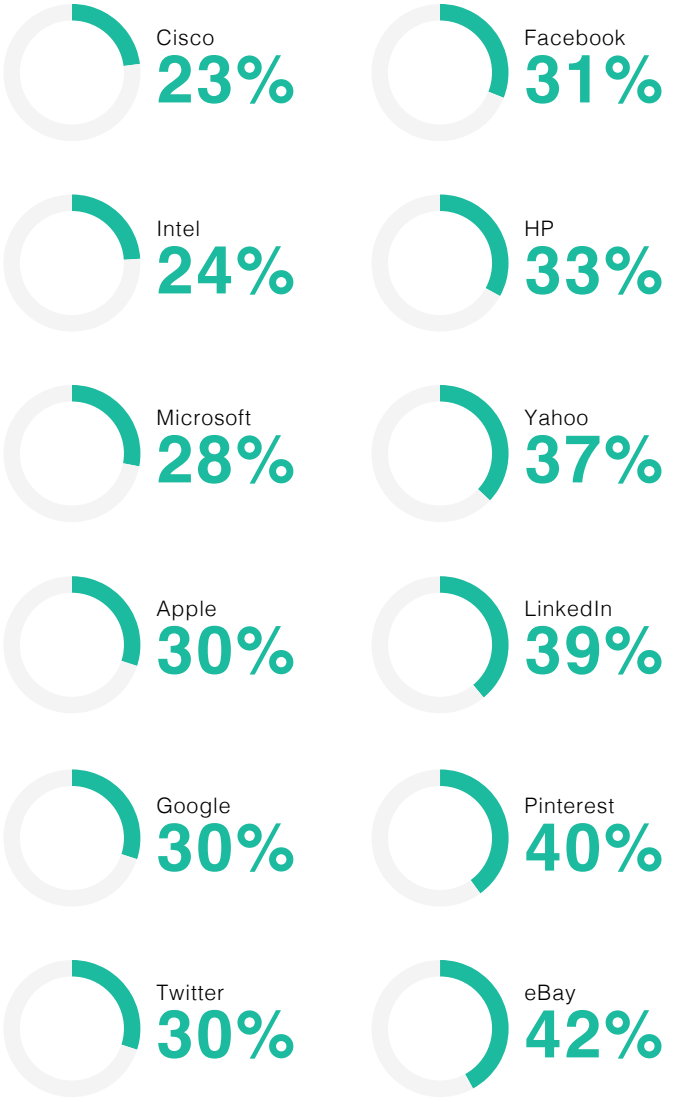


Overall Diversity Source: https://gigaom.com/2014/08/21/eight-charts-that-put-tech-companies-diversity-stats-into-perspective/. Gigaom graphic by Biz Carson. Source: Company diversity reports released as of August 19, 2014 and the U.S. Bureau of Labor Statistics 2012–2013 Labor Force Characteristics by Race and Age report. Note: Hispanics are not identified because the BLS says, "People whose ethnicity is identified as Hispanic or Latino may be of any race." Cisco only identifies Caucasian and other minorities. It does not provide a more complete breakdown.

Diversity: Tech Source: https://gigaom.com/2014/08/21/eight-charts-that-put-tech-companies-diversity-stats-into-perspective/. Gigaom graphic by Biz Carson. Source: Company diversity reports released as of August 19, 2014. Cisco, Pinterest, Microsoft, HP and Intel did not release tech breakdowns. Please note that the numbers in the company charts come from a range of sources—federal EEO-1 data, company blog posts, and annual corporate reports. In some cases, particularly diversity in leadership roles, the companies have slight differences in how they collect and categorize their demographic data (for example: counting a global workforce versus just U.S. based). In other words, it's not entirely parallel information. But our charts represent the best comparisons we could draw among the companies. When appropriate, we explained the differences in the footnotes.

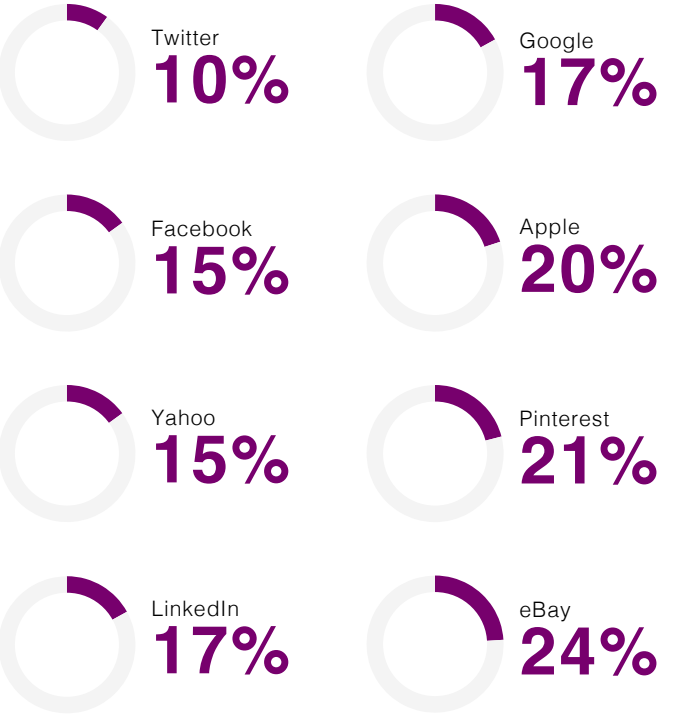
Female Male

OVERALL GENDER



Overall Gender Source: https://gigaom.com/2014/08/21/eight-charts-that-put-tech-companies-diversity-stats-into-perspective/. Gigaom graphic by Biz Carson. Source: Company diversity reports released as of August 19, 2014. Yahoo reported 1% other/undisclosed.

GENDER: TECH

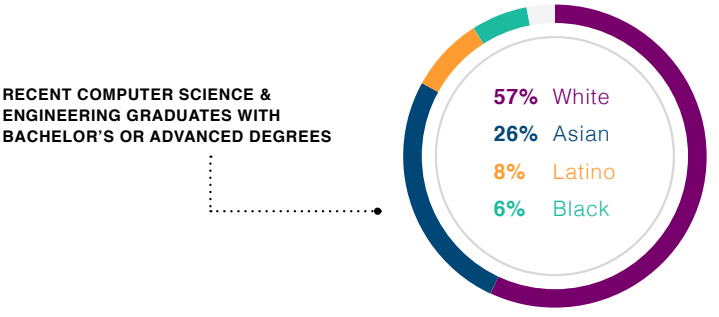


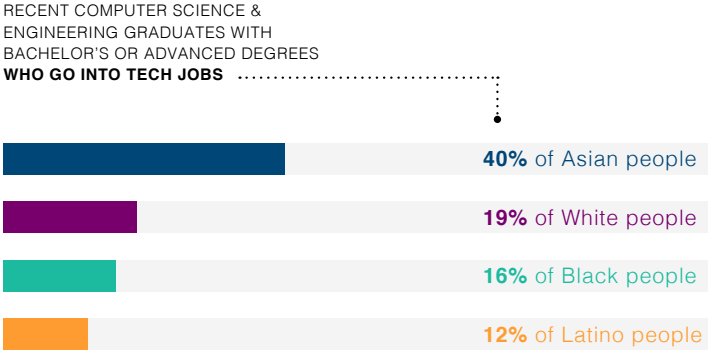
Gender: Tech Source: https://gigaom.com/2014/08/21/eight-charts-that-put-tech-companies-diversity-stats-into-perspective/. Gigaom graphic by Biz Carson. Source: Company diversity reports released as of August 19, 2014. Yahoo reported 1% other/undisclosed. Cisco, Intel, HP and Microsoft did not report tech breakdowns.

IS IT A PIPELINE PROBLEM?

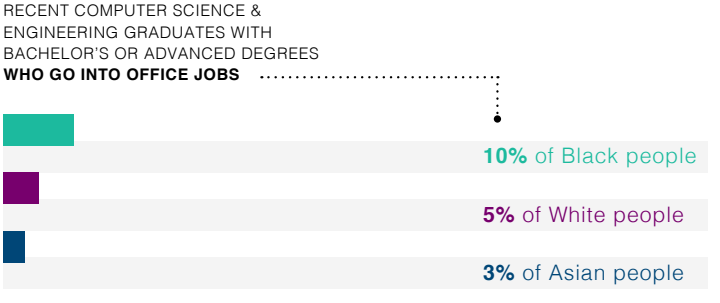
Not necessarily.

Consider this: Of all recent computer science and engineering graduates with bachelor's or advanced degrees, 57 percent are White, 26 percent are Asian, 8 percent are Latino and 6 percent are Black (Bui & Miller, 2016). Yet, only 16 percent of recent Black graduates with a computer science or engineering degree go into tech jobs. It's even lower for Latinos (12%). In comparison, 19 percent of White graduates and 40 percent of Asian American graduates go into tech jobs.





By contrast, Bui and Miller (2016) report Black graduates with computer science and engineering degrees have exceeded others in getting office jobs, including administrative support and accounting jobs (10%), which is twice that of White graduates (5%) and even more than Asian American graduates (3%). In addition to being lower paying, this trend wastes a lot of talent and skills, and further contributes to Black underemployment.



There are several emerging explanations for why fewer Black graduates with engineering and computer science degrees are getting hired into tech jobs. Most fall into the category of recruitment and retention. Our informal interviews with Black professionals in the tech industry suggests first and foremost there is a significant cultural problem in the broader tech ecosystem that adversely impacts Black communities (Marcus 2015). Despite increased national awareness of the benefits of a diverse technology workforce, employment discrimination is still evident and ongoing, but often in subtle ways including:

IMPLICIT BIASES
MICRO-INEQUITIES AND
MICRO-AGGRESSION

IMPLICIT BIAS

The bias in judgment and/or behavior that results from subtle cognitive processes (e.g., implicit attitudes and implicit stereotypes) that often operate at a level below conscious awareness and without intentional control (Pratt, 2016).

MICRO-INEQUITIES

According to Dictionary.com, micro-inequities are events which are typically ephemeral and hard-to-prove or covert, and often unrecognized by the perpetrator which occur wherever people are perceived to be 'different' (e.g., confusing a person of a certain ethnicity with another person of the same ethnicity).

MICRO-AGGRESSION

According to Dictionary.com, a microaggression is a subtle but offensive comment or action directed at a minority or other non dominant group that is often unintentional or unconsciously reinforces a stereotype: *microaggressions such as "I don't see you as black."* In many cases, this can be intentional.

Moreover, despite recent widespread interest and attention to increasing diversity in tech, especially by several large firms, a recent White House Office of Science and Technology Policy (OSTP) report (Smith & Powers, 2016) found that "many of the same people who want to create high-performing, innovative teams and workforces do not know the steps and solutions that others are already effectively using to achieve their diversity, equity, and inclusion goals."

In response to this problem, the White House OSTP report lays out very specific strategies based on what has worked to effectively increase diversity, equity, and inclusion in science and technology that target: Leadership, Retention and Advancement, Hiring Pathways, and Ecosystem (see box for details). Based on data and input from people working in the field, the report provides effective strategies that when implemented can help to transform corporate culture.

RAISING THE FLOOR

SHARING WHAT WORKS IN WORKPLACE DIVERSITY, EQUITY, AND INCLUSION

LEADERSHIP

Increase leadership engagement of senior and mid-level management. Recommended steps include:

- Creating concrete engagement points for senior leaders
- Upgrading mentorship to sponsorship
- Creating accountability mechanisms
- Embedding diversity in the strategy

Background: There are many philosophies on who should "own" diversity within an organization, with human resources, the c-suite, or a special diversity office being some of the most common choices. Regardless of who owns the tacts and execution, visible and deliberate leadership engagement is necessary in order to provide any efforts the best chance of success. **Further, anyone who manages others must be responsible for inclusion.** Without senior-most-level engagement, diversity is often considered a secondary "nice to have" rather than a priority for an organization. Leadership engagement sends a strong message to potential candidates and current team members. Further, there are ways that only a senior leader can amplify an initiative and motivate a team or workforce that are valuable when change management is required, as it often is with this work.

RETENTION & ADVANCEMENT

Improve the retention and upward mobility of diverse talent. Recommended steps include:

- Identifying current obstacles
- Analyzing and sharing data
- Training the current workforce
- Leveraging professional development
- Institutionalizing formal feedback
- Supporting employee resource groups

Background: Often diversity is assumed to be a recruitment issue, yet when retention and advancement data are examined, it becomes clear that people from different backgrounds are staying on and moving up at different rates within an organization. This may indicate a culture that could evolve to be more inclusive, a set of policies and practices that inadvertently favor one subgroup over another, or other issues. The workforce itself may be a valuable source of insights into patterns. While recruitment can initially appear to be more high impact as a focus area when attempting to impact diversity, those efforts will be wasted if individuals cannot be effectively retained and advanced.

HIRING PATHWAYS

Strengthening pathways for candidates into your workforce. Recommended steps include:

- Conducting deliberate outreach
- Expanding points of entry
- Prioritizing data
- Updating candidate screening systems

Background: Today's workforce is becoming increasingly diverse; in almost every case the available pool of talent is more diverse than the current employee base. A focus on hiring, particularly at the entry level, provides a unique opportunity to not just impact today's diversity numbers, but also to sow seeds for a future workforce that represents the full diversity of America. The large quantity of available talent from underrepresented backgrounds also means that a homogeneous entry-level workforce can be an indicator for workplace culture and bias issues, and so information about an entity's entry-level workforce is particularly useful data to track.

ECOSYSTEM

Build external constituencies of support. Recommended steps include:

- Finding allies in the work
- Using moments of influence to further the work

Background: Best practices are continuously emerging from within and outside of any given organization; creating ways to learn from and share those best practices can accelerate change. Equity work can be challenging and draining, and creating allies within an organization and across aligned organizations can provide opportunities for visibility and camaraderie to individuals leading the charge internally. This type of community building can be critical in sustaining individuals, efforts, and change.

In addition to the traditional academic pipeline, two tech pipelines need more attention: alternative forms of education and entrepreneurism.

ALTERNATIVE ACADEMIC TRAINING

In addition to making space for Black people in STEM, engineering and computer science, it is important to look at the growing alternative sources for new talent. This includes Black people who complete training programs to get state of the art skills quickly and the certificates that prove they are prepared. Training can prepare people who are looking for their first job or their next. Training is also now being incorporated into traditional high school curriculum so that students can get vocational technical (voc-tech, or more recently referred to as Career and Technical Education) degrees so that when they graduate they are educated and ready to work in entry level positions, and in some cases have work experience through school placements. In short, tech training is not only part of the lifelong learning that most need to keep current and to get ahead – it's also a means for people to enter tech at any stage of life.

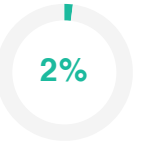
Some in the corporate world recognize that hiring from this pipeline in addition to the traditional four-year degree programs can be a game changer in this fast-paced tech ecosystem, especially with regard to increasing diversity (Carew, 2016).

Still, there remains a certain elitism or **pedigree preference** that may prevent an applicant with a certificate who is prepared for the job from even getting an interview. This bias may explain why Black and Latino applicants are passed over even when the position does not require a degree.

ENTREPRENEURIALISM

A more common entry into the tech world is via entrepreneurship. For some, starting a business is exactly what they want to do, while for others it's a practical means to create a job – if a door is closed then open another. Statistics from the 2014 Annual Survey of Entrepreneurs show "minorities" (i.e. people of color) to be in some of the fastest-growing segments of entrepreneurial business in the United States today including tech. Yet while people of color make up about 18 percent of all entrepreneurs in the country, the majority are Asian American (53%) followed by Latinos (25%) and then Black American (11%). And among all entrepreneurs in the US, only 2 percent are Black.

People of color make up about 18 percent of all entrepreneurs in the country



Among all entrepreneurs in the US, only 2 percent are Black

One thing limiting growth of Black entrepreneurs is access to capital. The statistics are striking.

In 2010, less than 1 percent of venture capital-backed company founders were Black while 83 percent were White. And while internet-specific companies raised $7.1 billion in 2013, very few were Black founders. A study by Gilpin (2015) at the University of New Hampshire's Center for Venture Research found that few entrepreneurs of color even make a pitch to a venture capitalist (6%), and of those that did, the yield rate was low (15%). At the same time, Black people are more likely than White people to use a personal credit card – 19 percent compared to 10 percent (Robb & Morelix, 2016).

In 2010, less than 1 percent of venture capital-backed company founders were Black

19 percent of Black entrepreneurs used a personal credit card

Furthermore, despite the relatively rapid growth in Black women entrepreneurs – **more than 300 percent in less than 20 years – relatively few have raised capital even though these businesses generated over $44 billion a year** in revenue. Of those few that raised money between 2012 and 2014 (less than 1%), the average amount was $36,000 – well below what a typical failed startup founded by a **White male had raised (an average of $1.3 million)** (Finney & Rencher, 2016).

$36,000

The average amount of capital raised by Black women entrepreneurs

HOW DO WE BUILD BLACK TECH ECOSYSTEMS?

With a structure that can nurture, inspire and sustain the Black community and the ecosystem itself.

Black Tech Mecca believes three pillars – academic, corporate, entrepreneurial – are critical in shaping and growing a healthy tech ecosystem for the Black community. **Academic** refers to both traditional systems of education (e.g. K-12, colleges and universities) and training (vocational, continuing education) that builds skills, imparts knowledge and generates new ideas – all critical in developing our pipeline of talent. The **corporate** world provides employment opportunities, ladders to climb, and some degree of stability.

ACADEMIC

CORPORATE

ENTREPRENEURSHIP

It also includes thought leaders that can change a culture and create the right environment for Black people and others underrepresented in the industry. In contrast, **entrepreneurs** create their own jobs, opportunities for advancement plus jobs for others, taking risk at every step. They also can be “disruptive” in ways that can help take corporate and academic pillars in new directions, and hopefully in ways that are mutually beneficial and that can further grow the tech ecosystem. For all three, there needs to be a vertical structure for advancement, which relies on **resources and trust** to sustain and help move people up. A strong Black Tech Ecosystem will support, promote and advance Black academics, develop, support and promote Black corporate workers, and develop, support, and launch Black entrepreneurs.

FIGURE 2: Structure of a Healthy Black Tech Ecosystem

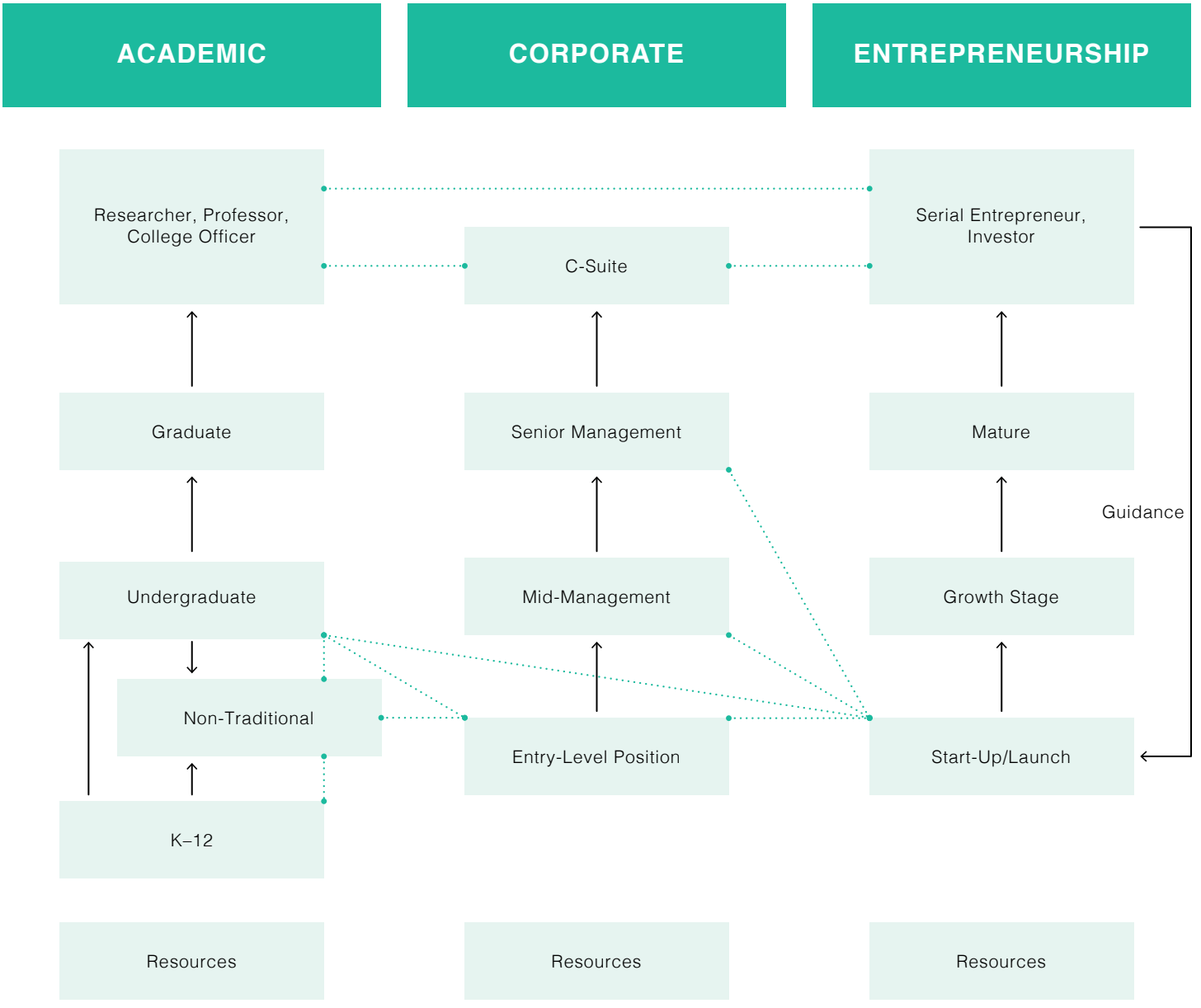


Figure 2 illustrates a cohesive and interconnected structure required to provide support and entry into tech and the pathways for movement across and between pillars that can produce synergy and positive catalytic change. This can come in the form of collaborations between leaders across the three pillars at different levels. Below are two examples which exemplify the kind of dynamics that can help advance Black people in the tech ecosystem, the first actively working to integrate students into corporate and entrepreneurial opportunities while the second demonstrates how start-ups can "pay it forward" for the Black community.

CODE 2040

is an example of synergy working across all three pillars, giving direct attention and opportunity to Black people who might otherwise be overlooked through normal channels.

Code 2040 provides Black and Latino college students access to paid internship opportunities within the tech sector. The fellowship program started with just five fellows and has since grown to work with over 75 companies (Chew, 2016). Organizations such as Groupon, Lyft, and Pandora are all participating in this effort to give students essential tools to succeed, e.g., skills-based trainings, all expense-paid trips to top tech companies, and mentorship opportunities are also offered by the nonprofit. Additionally, Black and Latino Entrepreneurs can be connected to vital resources as well through Code 2040's residency program. Tech founders can focus on developing their company while working with tech hubs to build a more inclusive tech ecosystem.

UNCHARTERED PLAY

is a great example of a pay-it-forward entrepreneurial venture.

Unchartered Play is a Black female owned business that produces "energy-generating play products that power and empower communities worldwide." What began as a small start-up rapidly grew because a few investors, including Magic Johnson, put $7 million into it. Its biggest selling product is the Socckit, which after an hour of playing soccer has stored enough energy to power a light at home for 3 hours, which is much needed in most developing countries and places with limited power supplies. Being "off the grid" is not only cost effective for the family, it's green. Paying it forward, the company's founder, Jessica Matthews, decided to move her company from Tribeca to Harlem, and to invest in the community by hiring and buying local. She also started a foundation with the goal of launching 100 new start-ups and bringing 10,000 Harlem residents through their tech curriculum for new inventors, "Think Out of Bounds."

These examples illustrate creative and synergistic solutions to multiple problems. They also point to several fundamentals that are required for a healthy tech ecosystem including capital, a means to connect, and access to a solid talent pool. In addition, the research on growing tech ecosystems identifies several other things that are needed to help make a tech ecosystem grow, become vibrant, and evolve, which in turn can help to measure the success of a BTE.

HOW DO BLACK TECH ECOSYSTEMS GROW & THRIVE?

The same things that make any tech ecosystem grow and thrive. **However, it also requires specific attention to factors and behaviors that limit Black participation and/or that may be unique to the Black community in relation to tech.**

Most agree that the overall space must be supportive of tech ecosystem players. This includes **places** that can bring tech people together – both through formal and informal settings – since proximity speeds up development (Espinal, 2014). Many urban areas with a tech scene now have incubators, co-working spaces and tech hubs. Based on what is published, many of these same locations also have at least one space that is either in a Black community and/or that targets people of color. What is unknown is how successful these spaces are and if there is enough of them to help grow the BTE.

Ecosystem players also need access to **infrastructure,** which means internet connectivity that is widely available and preferably with no to low cost. While the digital divide is narrowing, Black families and communities continue to be behind (Horrigan, 2015). Recent research suggests this is changing with the rise of **Black Millennials who are on par with or even exceeding their cohort when it comes to technology use and adoption (Nielsen, 2016).**

The **location** itself also matters – its economic diversity and accessibility and other features that spur creativity, motivate and excite. An added dimension to consider when looking at the BTE is how racially and ethnically diverse a community is and then how **spatially segregated** it is by race, ethnicity, and income. While we do not know if a **high concentration of Black people** is an advantage, we do know that under-representation has been cited by many Black people in tech as a reason for leaving jobs, the industry or an area (Learmonth, 2015).

Equally important is access to **talent.** For a BTE, this includes Black talent coming out of the academic pillar, Black talent within the corporate pillar – employees looking to advance themselves, people who are pushing new ideas, and leaders who are making investment decisions – and Black entrepreneurs at all stages of development. Foundational to building a high quality, high value talent pool are: **quality education options** for Black students to pursue engineering, computer science, and STEM through traditional higher education and **relevant certified training and skills building courses** that produce fresh and up-to-date Black talent. And of course, it all starts with a good foundation laid in grade school, junior high and high

While the data in this report suggests under-representation of Blacks in tech is not a pipeline problem per se, this does not presume the distribution of Black talent and talent producing outlets are evenly distributed. When assessing any BTE, **consideration needs to be given to local conditions to better understand the flow and availability of talent in a location.**

A tech ecosystem is more likely to thrive in a strong **culture of failure** (or at least a tolerance for it), which is also key to successful entrepreneurship. To support this culture of risk taking, all people in tech need access to successful **mentors** and serial entrepreneurs, as well as access to **experienced capital**. Preferably, there are specific incentives including **tax relief** for investors investing in risky companies and for successful founders. All will benefit from a **simplified legal system** and having access to **experienced legal counsel.** In addition, more people are looking at how vibrant the **exit market** is since this can track with growth, diversification and expanding venture capital, assuming investors are selling to realize gains and choose to reinvest in the region.

For each of these characteristics, it cannot be assumed that access and availability is race neutral and especially when it comes to capital given the long-standing patterns of discrimination, disparate treatment and redlining in Black communities. This means looking at what **alternative resources Black entrepreneurs and start-ups are tapping instead of banks and venture capitalists including friends, family and personal credit cards.** Likewise, mentoring and networking opportunities that target Black people and people of color are assumed to be critical in strengthening the BTE since these encounters provide support but also are likely to inspire new ways to help expand the BTE (Guynn, 2016).

Looking specifically at entrepreneurs, the Ewing Marion Kauffman Foundation identifies four indicators of **entrepreneurial ecosystem vibrancy (Bell-Masterson & Stangler, 2015).**

Density focuses on the number of new and young companies, what share of people they employ, and the number of high-tech startups in the area. **Fluidity** is about dynamics – the ebb and flow of people within a region – and the ability of employees to move between jobs and organizations, with particular attention to the number and density of high-growth firms. **Connectivity** refers to the actual connections between the projects/programs of entrepreneurs and resources including investors but also mentors, incubator spaces and talent. Further, a vibrant connected ecosystem will have strong spinoff rates and dealmaker networks. **Diversity** refers to both the variety of people and employment options as evidenced by multiple economic specializations rather than a single one. Diversity also includes economic mobility and being able to move up without necessarily leaving the region. When assessing a BTE, **we need to ask how Black tech entrepreneurs are doing relative to all tech entrepreneurs on all four characteristics.**

01 **DENSITY**

02 **FLUIDITY**

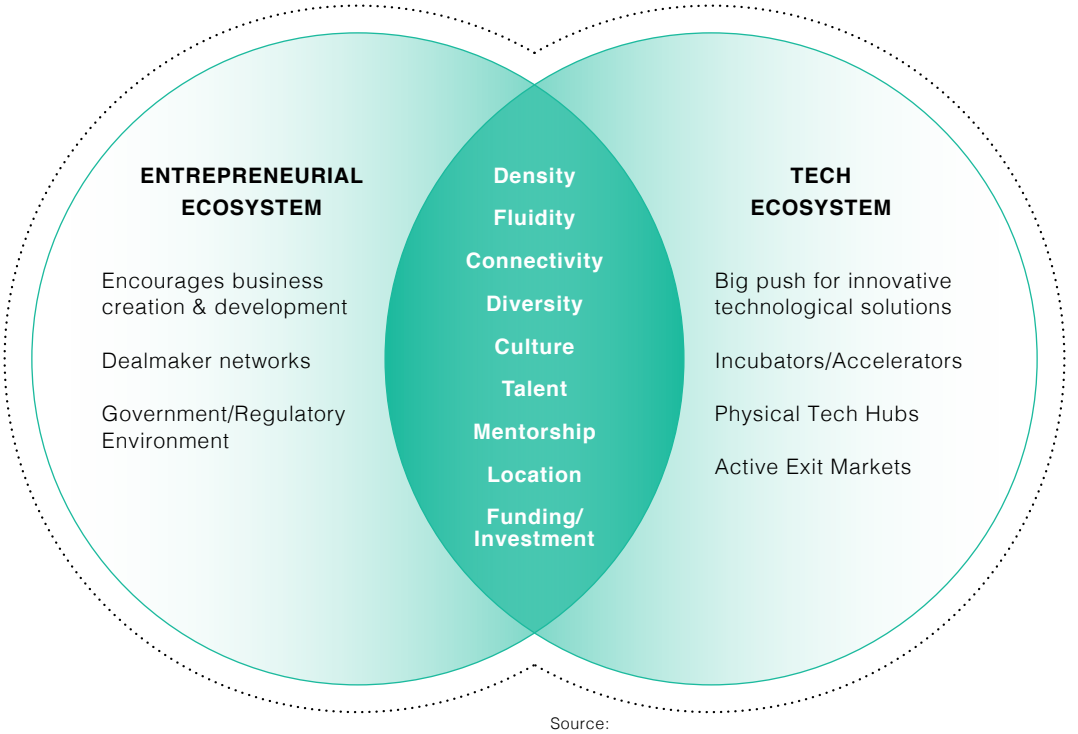
03 **CONNECTIVITY**

04 **DIVERSITY**

All these characteristics are expected to be found in a vibrant BTE. This includes representation of Black tech producers in all positions and levels of each pillar of the BTE, both in comparison to the whole ecosystem but also in comparison to other racial and ethnic groups. With that said, the point of making comparisons is to monitor progress toward parity and equality, whether it be salary, capital investment or academic achievement.

Combining all these measures, Figure 3 illustrates the dimensions required to seed and grow a dynamic and vibrant BTE.

FIGURE 3: Critical BTE Dimensions



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Increasing Black participation in tech requires strengthening the BTE along all these dimensions. The question is where to begin? The national statistics cited earlier in the report provide a basic understanding of the gaps, but to really understand an ecosystem requires digging into regional level data and uncovering the unique as well as common conditions Black people in tech experience around the country. While the boundary of an ecosystem can be custom-drawn, there are advantages of aligning it with existing economic geographies such as the "Core Based Statistical Areas" (CBSAs) defined by the US Office of Management and Budget. A CBSA contains one or more counties with a core urban area and that have "a high degree of social and economic integration (as measured by commuting to work) with the urban core."

The benefit of using the CBSAs is that there is a lot of existing and publicly available data on them that align with many of the measures in Figure 3. The downside is that the data on Black people in tech and the BTE itself is very limited, either because it has not been broken out by race or because it lumps all people of color into the category "minority" which as noted earlier is usually predominantly Asian when it comes to tech. What this means then for some measures that actually do have information on race is downloading and analyzing Federal data to get specific data on Blacks in tech. However, for those measures that do not have information on race, then other local sources are needed, which most likely will need to be cultivated.

To this end, Figure 4 outlines the characteristics of a successful BTE.

FIGURE 4: Characteristics of a successful Black tech-entrepreneurial ecosystem

DENSITY	A critical mass of Black start-ups and entrepreneurs as well as Black-owned tech companies
FLUIDITY	Sufficient opportunities for Black workers to advance by moving around in the region
CONNECTIVITY	Strong connections between Black people in tech, their projects, and resources
DIVERSITY	Variety of employment options across multiple economic specializations accessible to Black people to either work in a tech occupation or the tech industry
CULTURE	Collaborative and risk-taking with networking opportunities for Black people in tech or interested in entering the field
TALENT	A sufficient number and variety of Black people prepared to work at all levels of the ecosystem
MENTORS	A variety and availability of Black people in tech to support and advance Black people in all aspects of the BTE
INFRASTRUCTURE	Easy to access, uniform broadband and Wi-Fi infrastructure in Black communities in the ecosystem
INVESTMENT	A growing number and variety of investors, and the amount being invested in Black tech start-ups, entrepreneurs and firms, and in education to increase Black representation in the talent pool
REGULATORY ENVIRONMENT	"Race neutral" policies and programs, whether for large firms or start-ups, and evidence that Blacks in tech are equally benefiting from them
INCUBATOR / ACCELERATOR SPACE / TECH HUBS	Variety of options that are accessible to Black people in terms of location and price
MOBILITY	Evidence of Black people employed in tech advancing up the career ladder (positions and income)
ACTIVE EXIT MARKETS	Healthy level of activity among investors investing and reinvesting in Black tech firms, start-ups and entrepreneurs

FIGURE 5: Characteristics and possible data sources to assess three BTE pillars

BTE PILLAR	EVIDENCE/CHARACTERISTIC	POSSIBLE SOURCE OF DATA
ACADEMIC	Black graduation rates at all levels of education	State and local data on K-12; Integrated Postsecondary Education Data System (IPEDS) data
	Distribution of Black students in STEM, Computer Science, Engineering higher education	Integrated Postsecondary Education Data System (IPEDS) data
	Proportion and distribution of Black teachers at all levels of education	Local sources
	Availability and access to a range and variety of tech training, and proportion of Black participants	Local sources
CORPORATE	Black people working in tech occupations	American Community Survey Public Use Microdata Sample
	Black people working in tech industries	American Community Survey Public Use Microdata Sample
	Black owned tech firms	Survey of Business Owners and Self-Employed Persons, US Census
	Distribution of Black tech workers by level	US Equal Employment Opportunity Commission
ENTREPRENEUR	Number and proportion of Black entrepreneurs	Internal Revenue Service Survey of Entrepreneurs, US Census
	Distribution of start-ups and at different stages of development and rate of Black entrepreneurs in each	Local sources
	Proportion of Black serial entrepreneurs	Local sources

HOW DO WE EVALUATE BLACK TECH ECOSYSTEMS?

Currently, there are no “off the shelf” data to measure them, so all will require some level of data collection and analysis which will depend on the location. Figure 5 provides some guidance for doing research on a region’s BTE pillars using existing data where possible and incorporating insights and information from local experts, tech talent and others familiar with the BTE.

Looking at what features can best describe a tech ecosystem, we focus on three which are critical when conceiving of a Black Tech Ecosystem:

01 DYNAMIC

It changes over time as components (e.g., people, organizations, clusters, and networks) change including those that exit and enter. That means analyzing an ecosystem requires both cross-sectional data to see what is happening now and longitudinal data that allows us to see changes and shifts in the various components over time.

02 RELATIONSHIP DRIVEN

The relationships between and the interaction of components in the ecosystem are key to its functioning. Implicit is some notion of trust or understanding that shapes these interactions. Relationships created outside of one’s normal circles of trust is key. Creating trust can be extremely difficult and even costly but being able to attain it can lead to a growth in social value as well as economic value.

03 GROWTH ORIENTED

Growth can come from courageous behavior and risk taking by a few but also through mutual support and strategic networking of many. The former often benefits a few firms while the latter aims to benefit many and grow more. Both outcomes are important in entrepreneurial ecosystems; however, growing employment and firms occurs in ecosystems that can nurture and sustain them. This also applies to tech ecosystems, which rely heavily on risk-taking start-ups and innovators but also “serial entrepreneurs” and mentors to help foster new ideas and products and corporations to produce them. Tied to all this is healthy and thriving consumer/ user base.

DISCUSSION & LIMITATIONS

This report is the first step to developing a deeper understanding of the challenges we, and other producers in our ecosystem, face in making tech accessible for Black communities. Our challenge is to collectively ensure early exposure to different tech career options, quality (technical) education, and training opportunities that increase access to capital, employment opportunities, mentorship and peer support networks. Key in this work is the creation of physical and digital spaces for Black communities to experiment with new ideas and participate in a technology-driven culture that encourages risk taking. Our review of literature has supported some of our postulations about opportunity gaps in our ecosystem, and it has also informed our future research by raising critical questions that before this report, we did not have the knowledge and wisdom to ask.

We found it interesting that most scholars we reviewed studied the dynamics of Black (tech) representation and experiences in either academia, corporate, or entrepreneurship -- but not all three tracks simultaneously. This presents us the opportunity to contribute new insights to conversations around technology access by providing a holistic analysis across all three areas specific to the Black community, and to the broader tech sector. Going into the research, we were suspicious of a lack of data on the ACE pillars of the Black tech ecosystem, and after reviewing past literature and data, our suspicions were not suspended or reversed in our initial inquiry.

Over the past few years, diversity and inclusion advocates have lamented the framing of tech companies' poor diversity as a pipeline problem. Our review of available data and relevant literature suggests there is a strong indication that a faulty pipeline is not the case. Instead we need to focus the conversation and commitment to action on the real problem including undoing systemic barriers such as discrimination and ongoing impoverishment of Black communities.

We currently do not know the exact number of Black tech businesses in the US, but we suspect that the number is low based on low Black ownership of overall firms in the U.S which is roughly 2 percent. This is generally problematic for the economic prosperity of the Black community, and even more so, the employment opportunities available to Black people. It is widely accepted that the two top employers for the Black community are the public sector and Black businesses. This infers that we need to create more Black tech businesses to increase the number of Black employees.

There is much we are still uncertain about about when it comes to BTEs. It is difficult to develop a comprehensive snapshot of a black tech ecosystem based on the quantitative and qualitative data that is currently available. We are continuously exploring past research to discover what has been said about barriers to entry for Black technology entrepreneurs and professionals to understand why the current percentages are so low.

A critical next step for BTM is to take the ideas we proposed in this report and use them to evaluate BTEs at scale. We currently do not know which US markets are really succeeding in cultivating strong black tech ecosystems, because such evaluation methods have not been developed and deployed. That data could potentially provide valuable learnings to help guide other communities and collectively grow BTEs across the country. Our next study will do just this, by comprehensively assessing Chicago's Black tech ecosystem.

We recognize that we are a new voice stepping into an urgent conversation facing our nation. We intend to add to the robust, multi-generational insights that have led us to where we are today. We strongly believe that building broader interest in the value of data on BTEs can spark serious action and drive change. We have already forged promising partnerships through this initial effort, and look forward to collaborating with entities in the public and private sector to improve our shared understanding of Black tech ecosystems and how to develop them. This is only the beginning.

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BTM
BLACK TECH MECCA

ABOUT BTM

Black Tech Mecca uses data to identify challenges impacting how the Black community engages with local tech ecosystems. Our mission is to create thriving tech ecosystems that connect, measure, and direct local resources to empower black tech practitioners across the globe; crafting solutions that fill identified gaps and spearhead change. We are champions of tech empowerment - redirecting resources, reshaping perspectives, and redefining obstacles.

We are uniquely positioned to **reshape** how black communities see, experience, and engage with technology in every aspect of life by:

Bringing DATA to life. We partner with local government, academic, and private institutions to create proprietary data pipelines that quantify tech innovation within the black community.

Delivering SOLUTIONS that matter. Using insights from the data, we connect disparate elements of the local tech ecosystem by engaging private and public resources, players, and initiatives to create sustainable change.

Delivering progress through EDUCATION. We create content that broadens perspectives and shifts the conversation to retell OUR story, and find new ways to reframe mainstream perspectives.

Nathalie P. Voorhees Center for Neighborhood and Community Improvement

ABOUT VOORHEES

The Nathalie P. Voorhees Center for Neighborhood and Community Improvement is in the College of Urban Planning and Public Affairs at the University of Illinois at Chicago (UIC). The Center is a dynamic resource center that engages residents, leaders, and policymakers seeking effective strategies for advancing community livability and vitality. Since its founding in 1978, the Center has worked collaboratively with a diverse set of partners to provide technical assistance, conduct research, and generate new knowledge in comprehensive community development and neighborhood quality-of-life issues.

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