

DWEN

Dell
Women's
Entrepreneur
Network

Dell Technologies & DWEN WE Cities Research 2018

A ranking of top cities in the world for women
entrepreneurs to do more, scale faster and thrive

Capital + Technology Deep Dive Reports



DWEN WE Cities - 2017

Rankings of the Capital Pillar

- All in all, the San Francisco Bay Area is the winner of the capital pillar
- Out of the top 10 cities, 5 are North American, 2 European, 2 Asian, and 1 African
- Tel Aviv – in the Middle East region, was just outside the top 10 at number 11
- The Latin American region lags the most in the area of capital



San Francisco	1	Vancouver	26
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Minneapolis	25	Lima	50

DWEN WE Cities - 2017

Rankings of the Technology Pillar

- Austin, Texas is the top city in the technology pillar
- Out of the top 10 cities, 6 are North American, 2 European, and 2 Asian
- Middle East, African, and Latin American cities lagged far behind in this pillar



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Capital Deep Dive Report



Outline of Capital Deep Dive

- Introduction

- Motivation and approach for the capital deep dive study
- State of funding for women entrepreneurs

- Dell WE Cities Capital Results:

- Analysis of the overall capital scores
 - › Distribution of Capital Scores overall
 - › Distributions of Capital Sub pillars
- City Case Studies
 - › Identify unique cities in capital and conduct qualitative/quantitative research to identify forces that drive funding in these cities
- Industry Analysis
- Correlations

- Summary

- Summary of the capital deep dive study
- Future of Funding for Women Entrepreneurs

Introduction



Motivation

- Capital is critical for scaling; in our research we heard and learned that this is often the limiting factor and women face unique challenges when it comes to raising capital.
- Whereas other research has helped document the barriers for women, this research will contribute to a discussion on solutions. Specifically, what is working (or effective) for women entrepreneurs when it comes to accessing capital.
- The research also uncovers:
 1. How women entrepreneurs are accessing capital
 2. Do women in different regions access different sources of capital?
 3. What industries do women entrepreneurs gravitate towards and how does this affect capital access?
 4. How does capital access differ across leading cities?

State of Funding for Women Entrepreneurs



- 2017 was a great year for progress in gender equality. Movements against sexism, sexual harassment, and wage inequality were put in motion in a significant way.
- However, there was little to no improvement in the state of women entrepreneurship. The number of companies with at least one female founder has remained stagnant for past 5 years at 17% ([TechCrunch](#)). Moreover, there was not much improvement to the amount of funding these firms receive.
- [TechCrunch](#) reported that “for the first two quarters in 2017, startups with a female founder raised \$332 million in seed investment, or around 15 percent of all seed funding dollars. Approximately \$6.5 billion has been invested in female-founded companies, representing more than 11 percent of all dollars invested in the first two quarters of 2017.”



Continued...

- The stagnation in funding is attributed primarily to the lack of progression in women's roles as investors. However, there have been minute improvements in this area in recent years.
- The [CrunchBase Women in Venture Report](#) reports that the percentage of women partners at the top 100 VC firms increased 17%. Furthermore, there was a 25% increase in women partners at accelerators and women also founded 16 micro-venture funds in the last three years.
- The rate of inclusivity of women partners is becoming more prevalent at new firms; The study finds that the frequency of women partners is nearly three times in new firms compared to the top 100 firms.
- The increase of female partners in VCs, although small, is a positive sign for both women entrepreneurs seeking funding and the emergence of women's roles in investment positions.

Approach

- We analyzed the 2017 WE Cities data to identify which cities are leading in capital and what indicators within those categories are setting them apart.
- After identifying benchmark metrics and leading cities, we will do qualitative research into those cities to better understand what specific policies and practices are in place that are enabling greater access for high potential women entrepreneurs.
- The research will also uncover, what high potential women entrepreneurs are doing well in terms of accessing capital.
- For example: 1) How are women entrepreneurs accessing capital? 2) Do women in different regions access capital differently? 3) Do women in different industries have varying access to capital? 4) How does capital access differ across leading cities?
- Members of the Dell Women's Entrepreneur Network (#DWEN) shared their real world stories of accessing capital for this study.

Dell WE Cities Capital Results



DWEN WE Cities - 2017

Rankings of the Capital Pillar

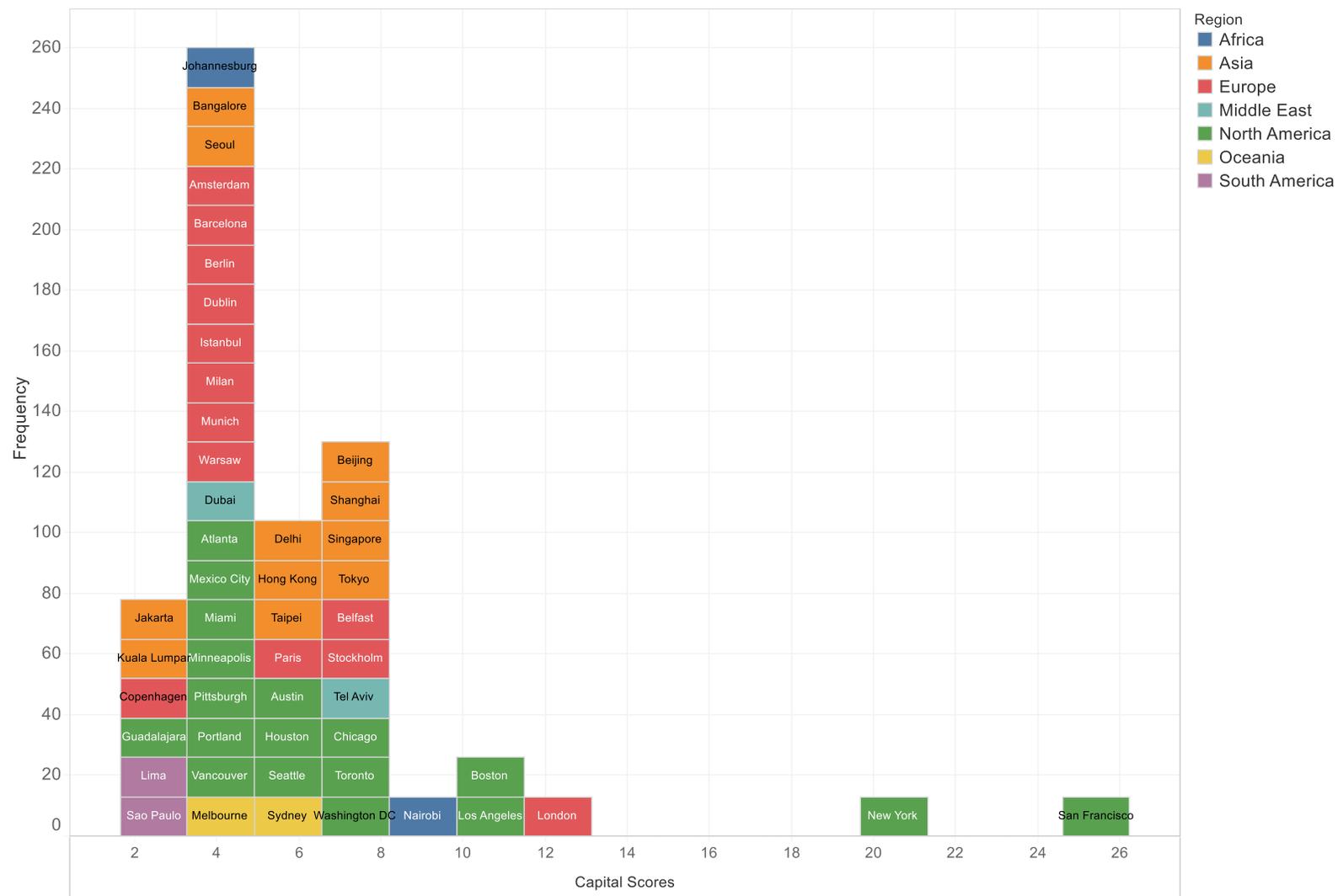
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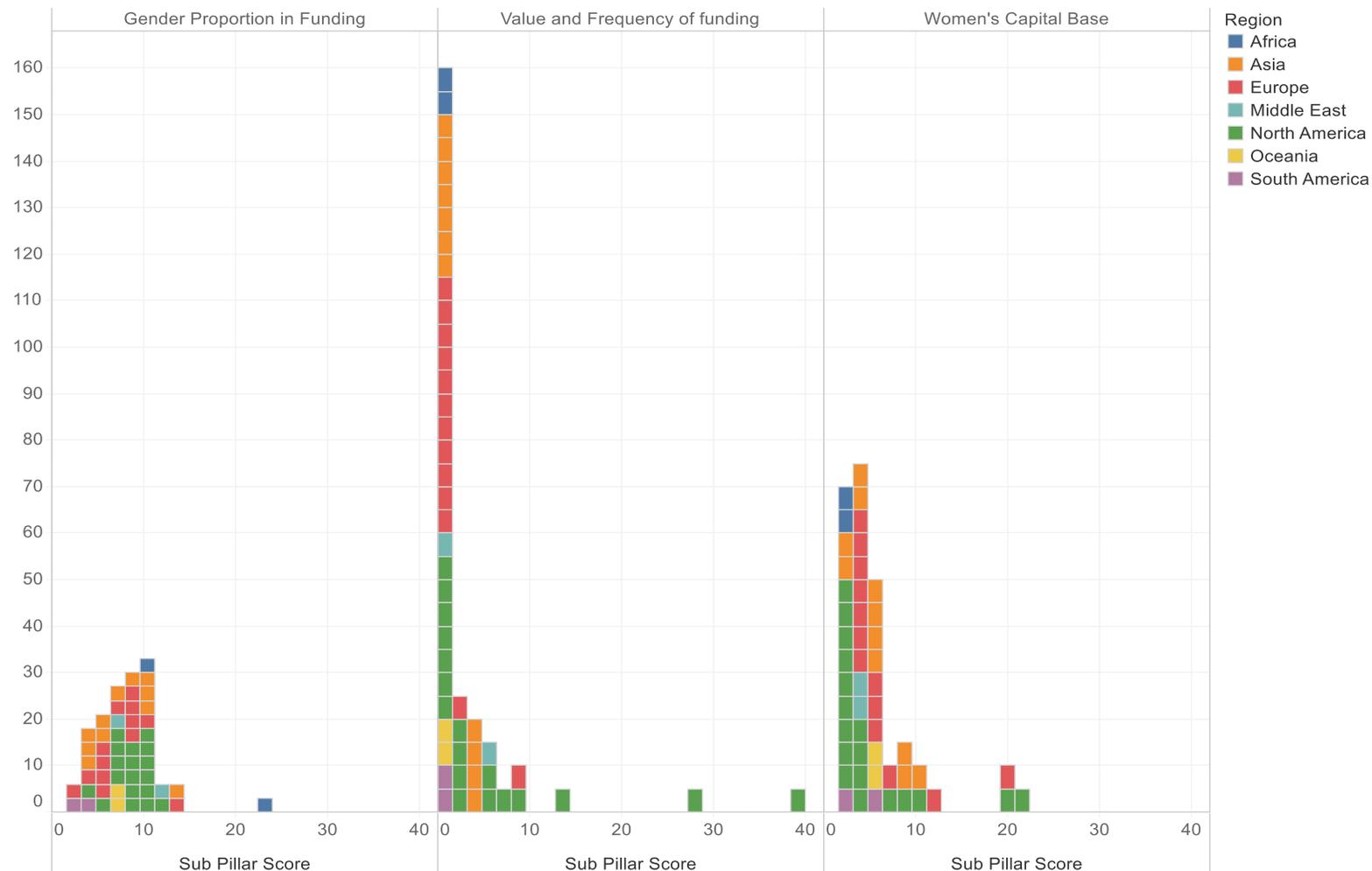
Capital Scores Distribution

- Obtaining capital to start or expand a business is one of the biggest obstacles for women entrepreneurs. It comes as no surprise that capital has a highly skewed distribution and the lowest average indicator score among the pillars measured.
- The heavy skew in the distribution demonstrates that there is still a long way to go in the area of capital for women entrepreneurs.
- The distribution of capital shines a light on the overperformers as well as the underperformers, identifying cities that stand out for better or worse.
- The San Francisco Bay Area significantly outperforms the other cities, Nairobi presents a unique case for being the only African city to make it in the top 10, and Sao Paulo, among the majority of Latin American cities, is in the bottom 5.



Capital Sub pillar Scores Distributions

- All sub-pillars are skewed to the low end.
- Encouragingly, the gender proportion in funding is the least skewed of the capital sub pillars. Demonstrating that progress is being made in the area of women's access to capital relative to their male counterparts.
- Low capital scores are not simply due to biases, they are a complex function of cultural, economic, talent and technology.
- Working on some of these factors, can create a virtuous cycle where strengthening the other pillars can attract capital and more capital can strengthen the other pillars for women entrepreneurs.



Benchmark City: San Francisco Bay Area



- The San Francisco Bay Area is the leader of the capital pillar. It ranks in the top 10 in all the capital sub pillars and benchmarks 6 out of the 14 indicators.
- It comes as no surprise that the Bay Area ranks 1st in value and frequency of funding. There is more venture capital investment on an aggregate and per capita basis than any other region in the world.
- The area's strengths in funding come down to sheer numbers. The area is home to 16 of the 62 most active, globally ranked VC firms, notably Intel Capital and Google Ventures. Furthermore, roughly 19 billion dollars of VC funds were given to businesses with at least 25% women executives, and there are 1450+ female founders or executives in 2nd round of funding or higher.
- The abundance of funding in the Bay Area does not necessarily translate into equitable funding for women. The area shows weakness in gender proportion of funding. The percent of VC funds going to women entrepreneurs is approximately 19% and the percent of businesses with a female founder or partner in the second round of funding or higher is 16%. Moreover, there is room for improvements of women's presence in investment positions, as the percentage of total investment companies with at least one female executive is 35%.

Practices/Policies for success: Networking is essential for obtaining capital. In analyzing the Dell WE cities data we found that cities with a large entrepreneurial network tend to score higher on capital. An advantage of living in the Bay Area is that the area is geographically small and allows for a higher interconnectedness of individuals. Our interview with Rose Broome, founder of HandUp, highlighted the areas open and optimistic culture. Furthermore, she emphasized that there is a culture of founders helping founders, which was significant in launching her business.

The Bay Area investors, compared to investors with financial services backgrounds, tend to have more experiences in launching startups themselves. Furthermore, they are more apt to take risks than other investors. This attitude leads to more investment in shorter periods of time. According to [RocketSpace](#), raising funds in the Bay Area “typically takes 2-3 month, for both seed rounds and Series A/B.

Practices/Policies need for improvement: The significant “bro culture” mentality in Silicon Valley can explain the gender gap in funding. Our interview with Amy Norman, founder of Little Passports, described the entrepreneurial environment in the Bay Area as “male entrenched”. There are more male VC founders and only a handful of female CEOs. The lack of women role models and women in investment positions lead to unconscious bias which affect funding opportunities for women. Recent news on sexual harassment allegations which led to the firing of Uber's former CEO, Travis Kalanick, and the forced resignation of venture capitalist Justin Caldbeck, are further instances that the area has ways to go in improving the entrepreneurial atmosphere for women.

There still a significant wage gap in the Bay Area. According to the census, “women in San Francisco earn 84 cents for every dollar that their male counterparts make” ([Fortune](#)). However, the city is making strides to combat this issue. In summer of 2017, Mayor Ed Lee announced that employers won't be allowed to ask applicants about their previous salaries.



Benchmark City: Nairobi



- Nairobi is an emerging hub for technology start ups and is rightfully recognized as Africa’s “Silicon Valley”. The city ranks 6th in Capital overall, 40th in Value and Frequency of Funding, 48th in Women’s Capital Base, and 1st in Gender Proportion of Funding.
- Nairobi leads the gender proportion of funding sub pillar. Roughly 67% of VC funds were given to businesses with at least 25% female executives. Moreover, there is a higher presence of women in investment roles relative to the other cities; 42% of investment companies have at least 1 female executive. The city ranks 1st in the percent of city businesses in 2nd or higher round of funding, coming in at 35%.
- However, strengths in equitable funding between men and women does not necessarily speak on the availability of funding for entrepreneurs. Nairobi scores on the lower end for both women’s capital base and value and frequency of funding. The city is however making strides to make Nairobi more attractive location for investors. Initiatives such as the Konza Technopolis is Kenya’s attempt at building a smart city. Konza is located approximately 60 kilometers outside of Nairobi, and it’s purposed to “be a world-class technology hub, home to leading companies in education, life science, telecom, and BPO/ITES.”

Practices/Policies for success: The success of women entrepreneurs in the Information Communication Technology (ICT) sector, although slow, has been more prevalent in Nairobi. University of Nairobi, largest university in Kenya, has been **actively partnering with technology hubs and incubators** to promote entrepreneurial development in the ICT sector; often, with the special focus of encouraging women into ICT. These initiatives are supported by the high rate of return among the Kenyan diaspora, who have professional and academic experience in STEM fields from the US, UK, and Europe. These entrepreneurs are typically responsible for finding new companies because they have experience in finding and persuading funders to finance new projects in Kenya. This is especially important as private funders are typically risk averse when providing start-up capital in sub-Saharan Africa.

Regionally, Kenya has a comparative advantage in the quality and reach of the **ICT infrastructure** throughout the country; especially via broadband and mobile networks. In 2017, internet penetration overall was around 85% nationwide. This is largely facilitated by mobile internet utilizing telecommunications infrastructure that has been rapidly developed by the market dominant Safaricom, in which the government retains a major ownership stake. For this reason, Kenya has experienced the fastest growth in mobile payment and transfer systems in sub-Saharan Africa, as well as the adoption and use of social media platforms. Since a new political party gained power in 2013, the government has exploited these comparative advantages by partnering with various technology hubs and incubators in Nairobi. This trend is expected to continue with development of the Konza Technopolis.

Practices/Policies need for improvement: The **availability of funds** for women entrepreneurs is lacking in the city. Although women have had relatively more success with microfinances, they are not sufficient to sustain their business. According to an IFC report, “women entrepreneurs who have outgrown microfinance loan limits have a hard time obtaining loans as small KSh1 million from commercial banks.” Furthermore, banks tend to discriminate against women entrepreneurs. The same report, noted that “bank officials tend to ignore [women] and prefer speaking to their husbands or male business partner.”



Benchmark City: Sao Paulo



- Sao Paulo ranks among the bottom 5 cities for capital. The city ranks 50th in Gender Proportion of Funding, 37th in Value and Frequency of Funding, and 15th in Women's Capital Base.
- Sao Paulo ranks the lowest in Gender Proportion of funding. This comes as no surprise as a survey by Sebrae and Dieese found that only 10% of all women founded organizations in Brazil receive outside funding. Roughly 3.5% of VC funds were given to businesses with at least 25% female executives. Moreover, only 5% of women founded businesses were in the second or higher funding round. The presence of women in investment positions also lacks in the city, only 13% of investment companies were found to have at least one female partner.
- The city also lacks in sheer numbers when it comes to funding opportunities for women entrepreneurs. Sao Paulo scores on the lower half in value and frequency of funding. The low score stems from the total amount of funding going to businesses with at least 25% female executives and the lack of major VC firms in the city. However, the city does particularly well in Women's Capital Base. Crowdfunding is just starting to become an option to some businesses and Sao Paulo ranks 29th in the index for the number of projects on crowdfunding sites. Just as an example, Catarse, the main crowdfunding site in Brazil, has moved around only BRL 32 million (about US\$ 10 million) in more than its five years in existence. And, no significant data exists to show crowdfunding options for women enterprises in Sao Paulo alone.

Practices/Policies for success: Sao Paulo offers generous **paid maternity leave** to women. The city ranks 10th in terms of maternity leave policies. The Brazilian law guarantees 120 days of paid maternity leave for mothers, and this can be extended for another two months following an agreement between companies and the unions. This level of support both during and after the baby is born provides women with stability at work.

The Sao Paulo local town hall is striving to encourage women to venture into new businesses. The local town's **partnership** with Google and Rede Mulher Empreendedora is an instance of a project with the intent to support women interested in investing in the tech sector –an area mainly dominated by men. This in turn helps Sao Paulo mobilize its women's capital base, where it ranks in the top half.

Practices/Policies need for improvement: Due to **the lack of outside funding**, women entrepreneurs tend to use their own savings and or get help from family members to start their business. However, direct bank loans, often secured against property, remain by far the most common way to finance new enterprises in Sao Paulo. One interviewee pointed out that the “the credit model in Brazil is still an old credit model, which only provides credit for someone who has a property. If the woman does not have a car or a house in her name, then she has less access to credit than men. Her situation is worse than men's to get the money in the banks.” This has disabled most businesses in the city to find cheap funding, and business owners have to negotiate with bank managers on rates that are usually very high. However, the recovery from the recent recession in Brazil, should enable the Brazilian Central Bank to cut interest rates to ameliorate the situation, at least in the medium term.

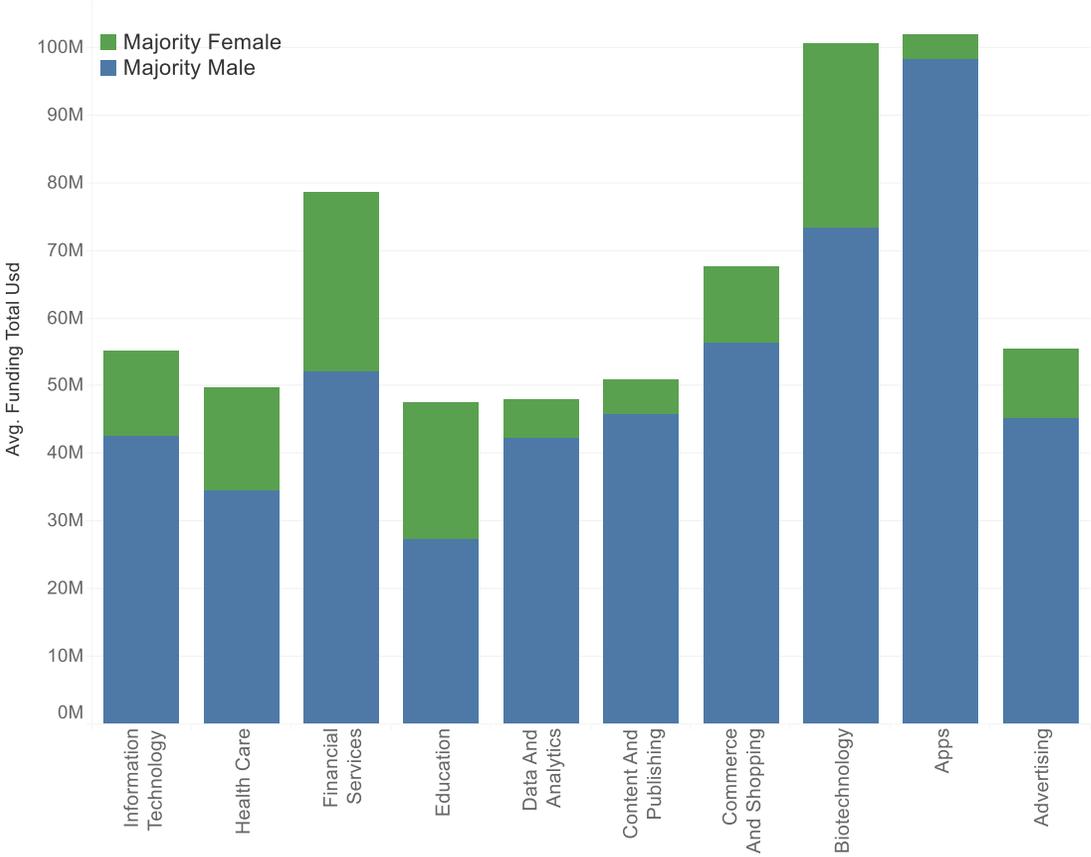
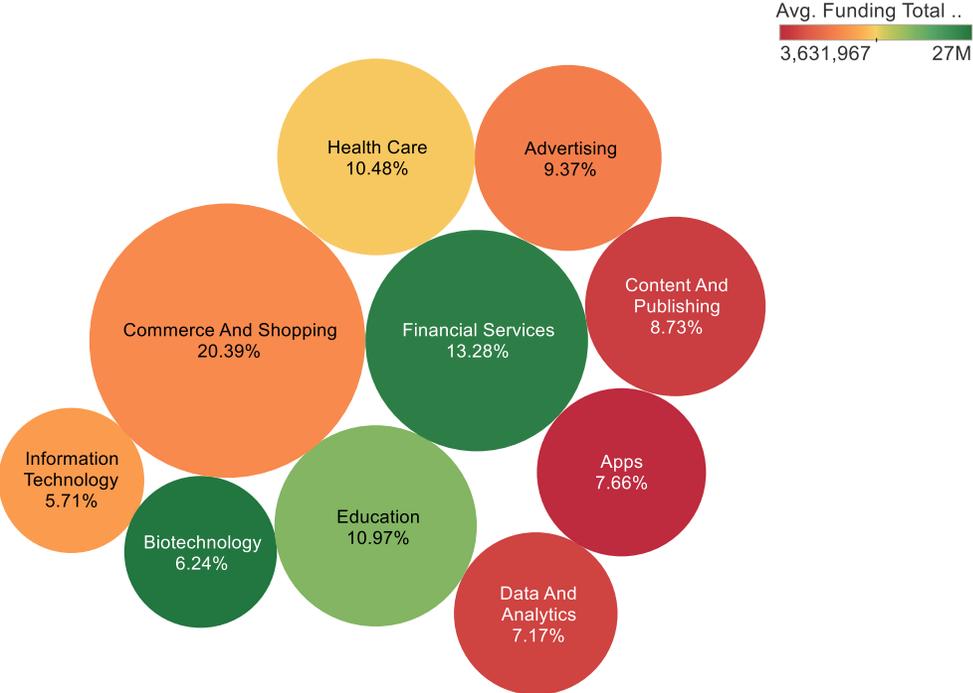


Industry Analysis

Leveraging data from CrunchBase, we identified the industries that men and women entrepreneurs tend to gravitate towards. This was done by aggregating the organizations with majority women executives. Furthermore, we color coded the industries by the average amount of funding raised.

About 20.39% of organizations with majority women executives fall into the commerce and shopping sector, yet on average the biotechnology sector has raised the most amount of VC funds.

Top 10 Industries with Majority Female Executives



Even among the industries that women gravitate towards, they raise less VC funds on average compared to their male counterparts.



Non-Capital Factors that drive Funding in WE Cities

Correlations between capital and non-capital indicators provide insight into outside forces that drive funding in WE cities.

We calculated correlations between the capital scores and non-capital indicators listed the top 3 highest correlated indicators:

Accelerators

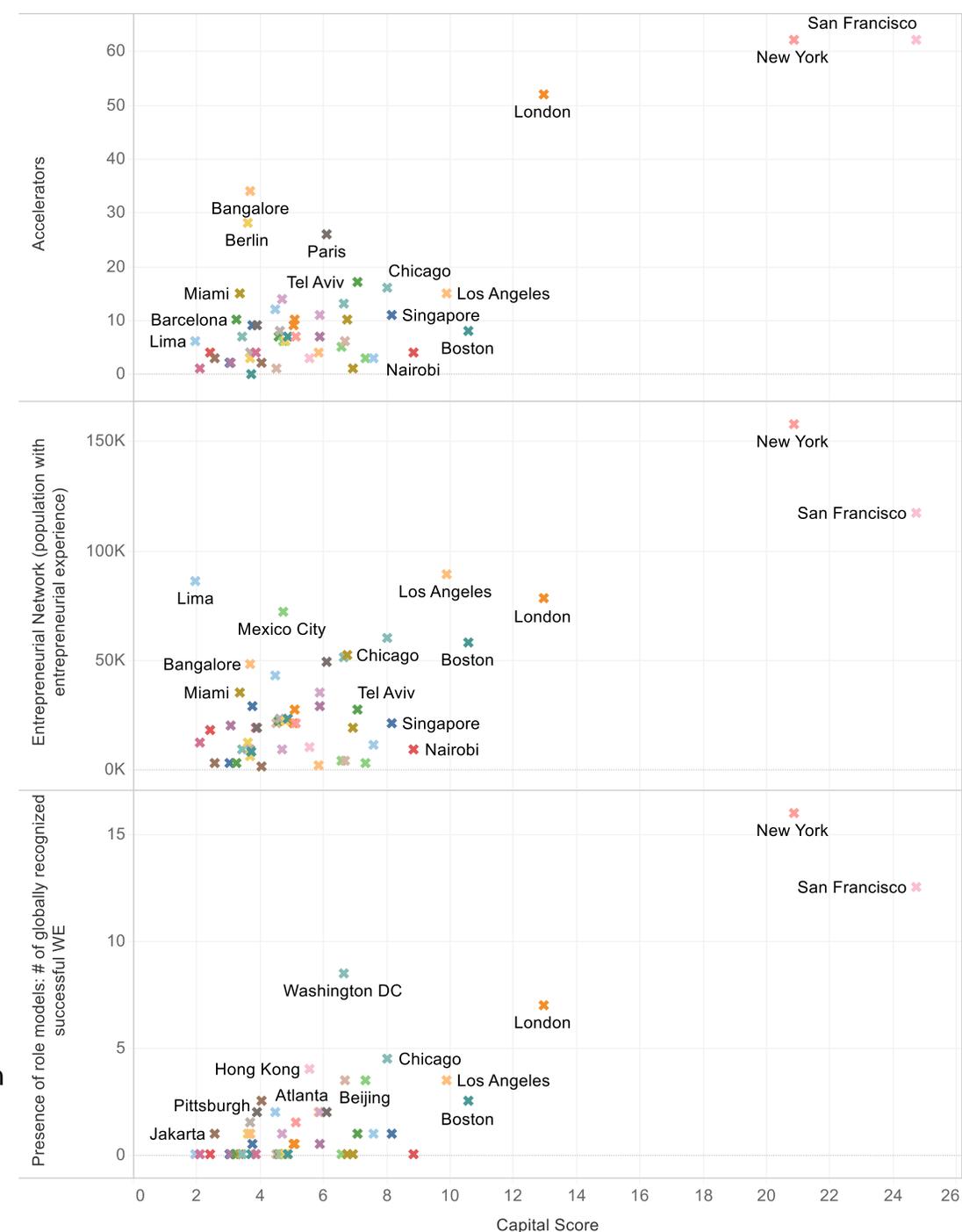
- Accelerators provide entrepreneurs with the proper network, investment and mentorship to start their business. Naturally, cities with higher number accelerators tend to provide better access to capital.

Entrepreneurial Network (population with entrepreneurial experience)

- Through our interviews and research we found that women entrepreneurs often noted networking to be a key factor in their success. Although networking does not guarantee funding, access to the right network can provide guidance to ensure that women are equipped with the right tools when pitching their businesses to investors.

Presence of role models: # of globally recognized successful WE

- The presence of role models in a city provides more than just inspiration for women entrepreneurs, they are a reflection of the environment. Thus, cities with a higher presence of role models tend to have a more inclusive and accepting culture, which can lead to less bias when it comes to funding.



SUMMARY

ACCESSING CAPITAL



Summary of the Capital Deep Dive

- The Dell WE Cities capital results and the city case studies show there are still major gender gaps in traditional investment channels e.g., VCs and banks.
- Recent [research](#) by Harvard Business Review, finds that there is bias in VCs approach to the questions posed to male and female entrepreneurs. The study finds that in the US “67% of the questions posed to male entrepreneurs were promotion-oriented.” Meaning, the questions focused on achievements and hopes of the entrepreneurs.
- While, “66% of [the questions] to female entrepreneurs were prevention-oriented”. These questions were more concerned with safety, responsibility and security. The study finds that entrepreneurs who were asked the prevention-oriented questions tended to raise less capital on average than those with the promotion-based questions.

Future of funding for women entrepreneurs: crowdfunding



- The difficulty of raising funds through traditional investment channels has led women to partake in new sources of funding. Crowdfunding has become a thriving source of capital for women entrepreneurs. A recent [study](#) of Kickstarter found that although women set lower funding goals, “they have been better able to raise funds in excess of their original funding goals, even in [male-dominated] categories, such as technology”.
- **Women’s success in crowdfunding is global.** [PWC](#) finds that globally, “22% of campaigns led by women reached their target, compared to the 17% of those led by men”. Furthermore, “on average each individual backer contributes \$87 to women compared to \$83 to men.” The gap widens to \$10 in the UK and US. Women’s success in crowdfunding is attributed to the even gender-level playing field for the backers. Unlike, the male-dominant traditional investment channels, crowdfunding allows for a diverse pool of investors.



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Technology Deep Dive Report



Outline of Technology Deep Dive

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 - Motivation and approach for the technology deep dive study
- Summarize Dell WE Cities Technology Results:
 - Analysis of the overall technology scores
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 - › Distributions of Technology Sub pillars
 - Benchmark Cities
 - › Identify the top cities in technology and analyze the metrics that set these cities
 - › Qualitative/quantitative research to identify outside forces that drive technology use in these cities
 - Correlations
- Identify the top cities in Technology
 - Analyze the metrics that set these cities apart
 - Qualitative/quantitative research to identify outside forces that drive technology access in these cities
 - Real world stories of women entrepreneurs
 - › Women using technology to scale businesses
 - › Women starting/scaling tech businesses
 - › Women who have found technology to be a barrier to scaling (i.e., where/how does lack of technology pose a constraint?)

Introduction



Motivation

- Based on the 2017 Dell WECities Index that ranked 50 cities for their ability on attracting and retaining women entrepreneurs, we found that many women entrepreneurs have difficulty talking about technology in general.
- They understand what they use, but many do not fully consider technology that is available that they may not be using, or how it can help them scale a business.
- This study is aimed at gaining insight into how women entrepreneurs use technology to scale businesses and how the technology ecosystem of a city can aid in that scaling.

Approach

- We analyzed the 2017 WE Cities data to identify which cities are leading in technology and what indicators within those categories are setting them apart.
- After identifying benchmark metrics and leading cities, we will do qualitative research into those cities to better understand what specific policies and practices are in place that are enabling greater access for high potential women entrepreneurs.
- The research will also uncover, what high potential women entrepreneurs are doing as well in terms of accessing and using technology (including what technologies and platforms women may be leading on)
- For example: 1) How are women entrepreneurs accessing and using and/or driving technology? 2) Do women in different regions access and use different technology platforms? 3) Do women in different industries use different technologies?
- With input from Dell and DWEN the studies will include real world stories from women entrepreneurs on their experience accessing and using technology.

Dell WE Cities Technology Results



DWEN WE Cities - 2017

Rankings of the Technology Pillar

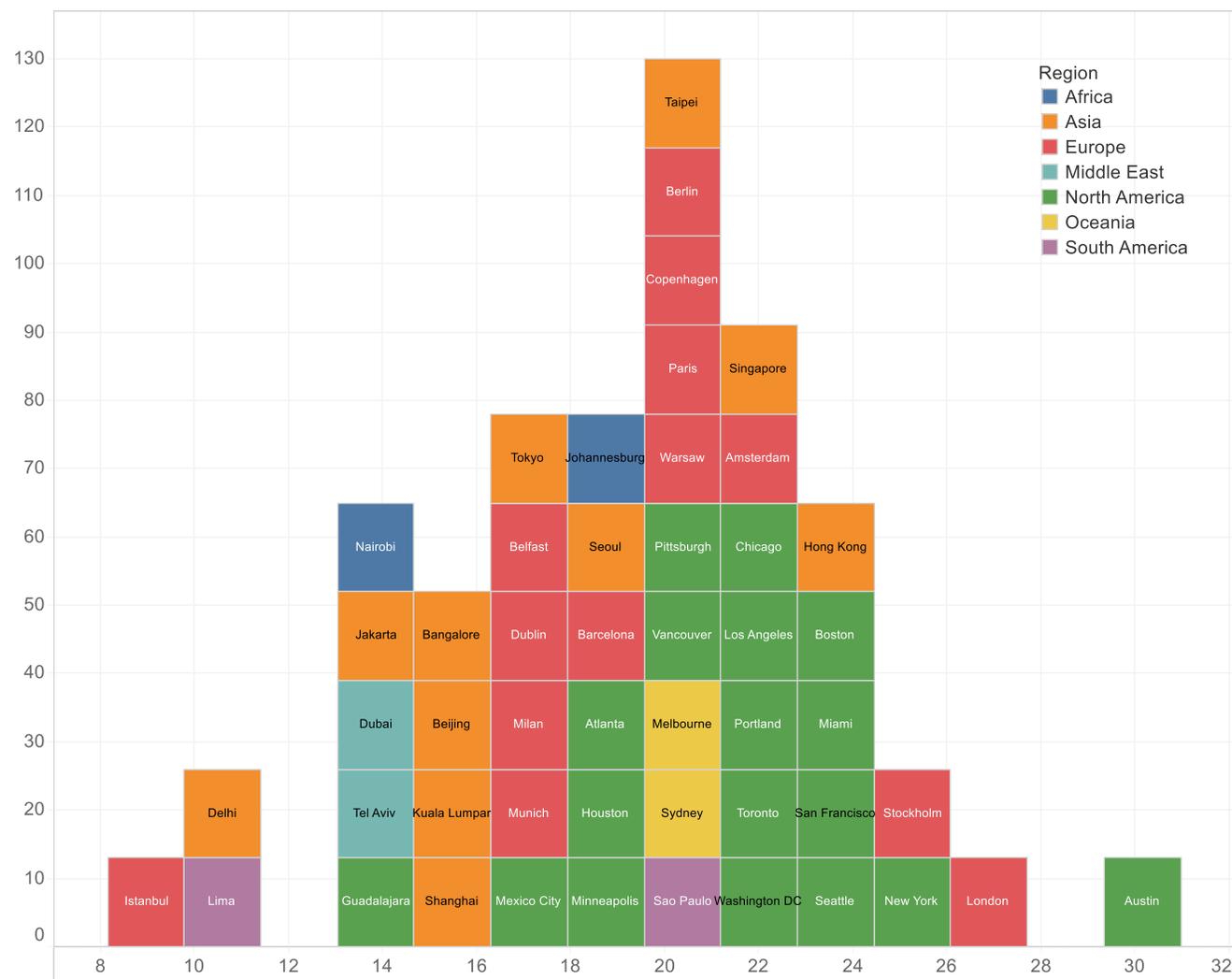
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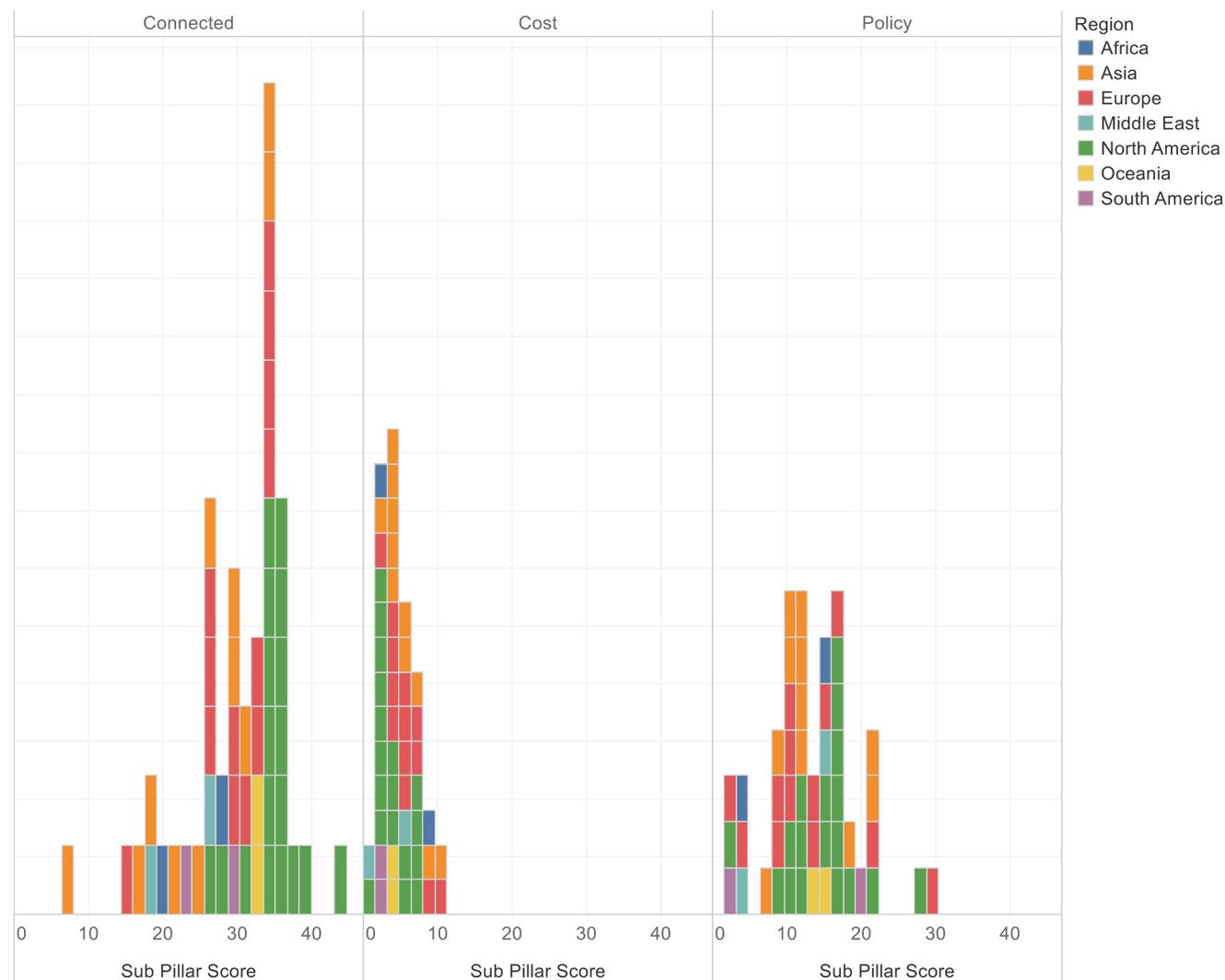
Technology Scores Distribution

- Access and use of technology varies widely across cities, creating a relatively normal distribution.
- This wide variation is spread fairly evenly across the cities in this study, suggesting that local policies and practices can make a significant difference.
- In general, Western cities and highly developed Asian cities fall on the upper half of the distribution.
- Austin only just outperforms other Western cities such as London, Stockholm, and New York in this category, while cities like Istanbul, Delhi and Lima lag far behind.



Technology Sub pillar Scores Distributions

- The distributions of the sub-pillar scores are very different from each other, giving an interesting picture of where disparities exist.
- The 'Connectedness' sub-pillar is highly skewed to the right-hand side, suggesting that high scoring cities are achieving relatively average levels of connectedness, with the others lagging far behind.
- 'Cost', on the other hand, is quite left-hand skewed, suggesting that cost is a category that could be improved across the board.
- Finally, 'Policy' has a wide, relatively flat distribution, suggesting that policies impacting the technology sector vary widely and can have a big impact on the pillar as a whole.



Benchmark City: Austin



The Austin Metro Area is the highest-scoring city for Technology. It ranks 2nd in Policy, 7th in Costs and 2nd in Connectedness out of 50 cities. Austin is an important tech hub that is well-positioned to provide female entrepreneurs with the knowledge to utilize new technologies.

Austin has a thriving tech network with women-oriented organizations and events that spread knowledge about technology. It ranks 1st in technology training, providing centers for women entrepreneurs across all sectors that enable them to improve their operations and scale up their businesses. The availability of mentoring is a meaningful factor driving the adoption of technology, as they encourage women to increase key technical skills and implement more advanced tools. Austin ranks 26th in the number of business organizations for women, many of which provide tech resources. Tech-specific ventures find well-funded start-up incubators and opportunities for collaboration with other women in the technology space.

Despite Austin's promising technology ecosystem, women entrepreneurs face a significant barrier in the form of high costs. The city ranks 42nd in mobile rates and 41st in standard internet rates. The 2015 study "Digital Inclusion in Austin" revealed that 61% of the city's 50,000 non-internet users agreed that costs were too high, and that they tended to be older, less educated and female. Efforts to expand cutting-edge telecommunications infrastructure, such as 5G and small-cell technology, are important to keeping up with Austin's booming growth.

Practices/Policies for success: Austin is one of the few cities that **collects and publishes data** on access to technology by gender and other demographics. This data enables the public, private and non-for-profit sectors to improve digital inclusion and address disparities that hold back women entrepreneurs of all backgrounds.

Tax incentives, grants and publicly-funded programs facilitate **access to technology**. These include a sales tax exemption on software and equipment employed in R&D, and the Grant for Technology Opportunities Program that awards funding and devices to projects that create digital opportunities for the community. The Texas' Skills Development Fund also provides training for employees through technical colleges.

Practices/Policies need for improvement: Austin ranks 1st both for the percent of women using the internet and using smart phones. However, investment in infrastructure to **support next-generation technology**, such as mobile broadband and high-speed optic fiber, lags behind the city's pace of growth. Reliable connectivity is crucial to supporting the business application of the internet of things and cloud computing.

Moreover, the development of interactive online sales platforms and streaming for retail promotion, as well as the ability to employ customer data insights in a smart-business ecosystem, require **improved connectivity speeds** that are relatively expensive in Austin compared to other cities.

Affordable internet access that can support emerging technologies would allow new and existing women-owned businesses to modernize, become more cost-effective and expand into global markets



Benchmark City: London



Greater London is ranked 2nd on Technology, with an international tech scene that has grown significantly over the past 5 years. It scores 1st in Policy, 16th in Cost and 30th in Connectedness out of the 50 cities studied.

London stands out for its ready availability of networking and professional development opportunities. A rich calendar of tech-related events enables women to access coaching schemes and establish cross-sector business relationships in a welcoming environment. The city ranks in the top 5 for mentoring programs for women entrepreneurs. Government initiatives, such as the Go to Grow program, offer mentoring, workshops and even access to trade missions to help businesses improve their use of technology and expand globally.

However, London scores low in the Connectedness category due to its lagging rates of smart phone ownership and social media usage compared to other large cities. It ranks 20th in the percentage of women who own a smart phone, at 89%. In addition, London ranks 35th on women's use of social media platforms such as LinkedIn, for which the ratio of women to men is only 76:100. While London scores 16th in Cost overall, it ranks 28th for the cost of mobile phone plans and 23rd for internet rates. This poses a significant barrier to internet access for women entrepreneurs.

In an effort to boost digital connectivity, the Mayor of London announced the creation of a Digital Infrastructure Fund to improve internet coverage in areas with poor provision in 2017. Moreover, the government launched an initiative to install free Wi-Fi in over 80 public buildings around the city in 2018.

Practices/Policies for success:

London ranks 7th for technology training, with a variety of **formal and informal educational opportunities** that are specifically designed for women. The city is host to many of the world's top universities and business schools, offering a wide range of courses on technology-driven innovation and the use of digital tools. Many of these award scholarships for aspiring female entrepreneurs. Community initiatives such as Code First: Professional Women organize workshops for women in all sectors to understand the role of digital tools and improve their practical tech skills.

The city's **technology-friendly policy environment** attracts investment from multinational companies and fosters the emergence of start-ups. London houses the regional headquarters of Google and Facebook, and in 2017 it received more venture capital funding for tech companies than all other major European cities put together. The importance of the tech sector creates a unique business ecosystem for women entrepreneurs to engage with emerging technologies.

Practices/Policies need for improvement:

London views data as an important part of its infrastructure, and has launched an ambitious plan to create a centralized City Data Market aimed at reducing data-sharing frictions. Nevertheless, the city could do more to ensure that gender-based disparities in technology utilization can be identified and rectified by expanding the scope of **data collection efforts** at the gender level.



Benchmark City: Sydney



Greater Sydney is an emerging global entrepreneurship center and ranks 23rd in the Technology pillar. The government actively seeks to promote innovation and gender diversity. The city ranks 24th in Policy, 34th in Cost and 22nd in Connectedness in the 2017 WE Cities Index.

The city ranks 18th in technology training organizations and provides a growing number of networking opportunities for entrepreneurs. The new Sydney School of Entrepreneurship, a government-funded NGO, brings together 12 universities and technical schools with the purpose of keeping the next generation of innovators in Australia. It hosts regular events aimed at expanding opportunities for women and spreading knowledge about the adoption of new technologies. Sydney is also home to some unique technology-oriented education initiatives. For example, the company Teacup Techies imparts personalized home lessons to help senior women use technology more effectively.

On the interviews conducted with female entrepreneurs for this study, a consistent theme amongst those operating in Sydney was the dichotomy between relying on technology to expand globally due to Australia's relative geographic isolation, and the relatively high barrier to leveraging that crucial technology.

Sydney has taken important steps towards improving internet access in recent years. The number of high-speed fiber connections rose to 1.4 million between December 2016 and December 2017, a 122% increase. In spite of this, the city ranks 44th in mobile rates and 35th in standard internet rates. Even though 89% of women in Sydney use the internet and own smart phones, a relatively high percentage, their ranks are only 20th and 21st respectively.

Practices/Policies for success: Australia offers some of the most **generous tax incentives** to start-ups in the world. These include a 10-year exemption on capital gains tax, a 20% tax offset for qualifying investments below 200,000 per investor per year, and a 10% tax offset on capital invested through early stage venture capital limited partnerships. Furthermore, in 2018 the government expanded the annual cap on cash refunds for early start-ups from AUD\$2 million to \$AUD4 million, and increased the R&D expenditure threshold for tax incentives from AUD\$100 million to AUD\$150 million.

The government of New South Wales opened the Sydney Startup Hub in 2018 to **bring entrepreneurs together**, along with investors, incubators and accelerators. It houses startups both within and outside the tech sector, providing a space for innovation, collaboration and knowledge transfer on cutting-edge technologies. Thanks to visionary projects such as this one, Australia is now in 1st place in the 2018 Economist Intelligence Unit's Technological Readiness Ranking along with Singapore and Sweden.

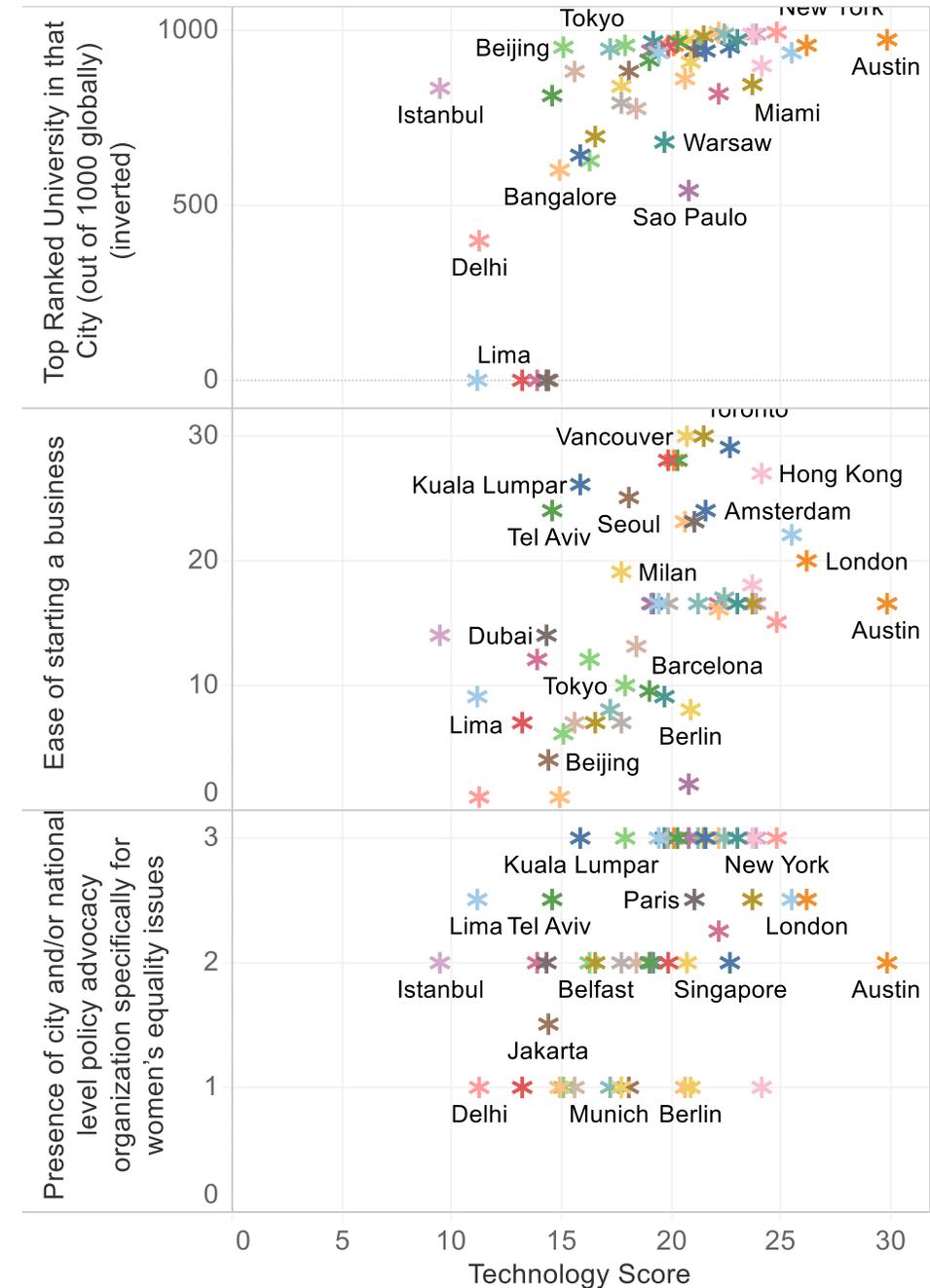
Practices/Policies need for improvement: Like other global cities looking to attract and support women entrepreneurs, Sydney would benefit from improving **data collection initiatives**. The Australian Bureau of Statistics gathers some gender-level data, but Sydney does not systematically collect data by gender or make it publicly available. Disaggregated data would facilitate the analysis of gender disparities in technology use and the design of policies that help empower women to reach their potential.

Relative geographic isolation makes global **scalability reliant on technology**, making improvements to access and cost of technology all the more crucial for female entrepreneurs in Sydney.



Non-technology Factors that drive technology access in WE Cities

- Correlations between technology and non-technology indicators provide insight into outside forces that drive technology access in WE cities.
- We calculated correlations between technology and non-technology indicators, focusing on the top 5 highest positively correlated non-technology. Then, we counted the frequency these indicators appeared in the top 3.
- The top 3 highest correlated indicators with technology are:
 - Top Ranked University in that City (out of 1000 globally) (inverted)
 - Ease of starting a business
 - Presence of city and/or national level policy advocacy organization specifically for women's equality issues



SUMMARY

RECOMMENDATIONS FOR ACCESSING TECHNOLOGY



Summary of Technology

- The Dell WE Cities technology analysis and the city case studies highlight the importance of connectivity, training and support networks.
- The cost of accessing the internet is a significant factor that affects how women use technology. Innovations that require high-speed connectivity strain telecommunications infrastructure and increase prices when investment can't keep up. Investing in improved connectivity can lay the groundwork for women entrepreneurs to derive tangible benefits from technological advancements.
- Mobile phone use and maintaining an active online presence are fundamental to scaling any business in today's fast-paced global economy. In some cities, there is a large gender gap in smartphone ownership, the frequency of mobile transactions and the use of social media platforms that magnify business visibility. Fostering parity is an important step towards empowering women entrepreneurs to improve their business outcomes.
- Technical skills training isn't just important to attract women into tech start-up hubs. Organizations that improve computer literacy in a judgement-free environment can enhance women's ability to use technology effectively regardless of what sector their business is in.

Summary of Technology

- Benchmark cities reveal the importance of mentoring networks to bolster the adoption of new technologies. Local and nationwide groups providing opportunities to ask for guidance from experienced entrepreneurs encourage business owners to implement more advanced systems.
- Tax incentives for investors and entrepreneurs play a prominent role in the development and acquisition of digital tools. Government schemes, including grants and cash refunds, can also help women entrepreneurs access the necessary technology infrastructure to expand their operations worldwide. This conclusion is supported by women interviewed across cities as part of this study.
- Reliance on technology for scaling a business beyond the local market means that high cost and restricted access to technology can have a disproportionate impact on women entrepreneurs scaling their business.
- Public access to data on technology use by gender can support the appropriate targeting and monitoring of policy interventions and community initiatives. Some of the top-ranking cities in the Dell WE Cities index have already begun to collect data on digital inclusion as part of their strategy to spur innovation and economic growth. Governments around the world can do more to make these indicators publicly available at regular intervals.

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Methodology: Dell Women Entrepreneurs (WE Cities) Index

**Measuring a city's ability to attract and support High Potential Women
Entrepreneurs**

June 2017



Introduction

As part of its thought leadership and commitment to Women Entrepreneurs, Dell has set out to benchmark and rate cities on their ability to attract and support High Potential Women Entrepreneurs (HPWE), defined as women entrepreneurs that are scaling and growing existing businesses with the potential to break through the \$1 million or more mark in annual revenue.

In order to gain more insight and perspective on what HPWEs need, Dell partnered with Dr. David S. Ricketts of the Technology and Entrepreneurship Center at Harvard (TECH), Palisades Media Ventures, and IHS to host a research symposium on April 5, 2016 at the Harvard Club in New York City. The symposium was invitation only and convened key stakeholders and experts including: successful women entrepreneurs, policymakers with a focus on supporting women owned businesses, venture capitalists that invest in companies with female founders, organizations that train entrepreneurs and media professionals and researchers who study entrepreneurship, women's issues, and global cities' economic performance.

The symposium provided new insight into the ways that female entrepreneurs' needs differ from those of their male counterparts and the importance of specific aspects of the operating and enabling environment in which they live and work, e.g. access to crowdfunding, paternity leave policies, women's own expectations about their ability to succeed in business, and the collection of gendered data.

Building on themes highlighted in previous literature on this topic and the April NYC Dell Research Symposium, IHS, Inc. was commissioned by Dell to develop an index (WE Cities) to compare the following 25 global metropolitan areas on their ability to attract and support HPWE:

Austin	London	Sao Paulo	Taipei
Beijing	Mexico City	Seattle	Tokyo
Delhi	Milan	Seoul	Toronto
Hong Kong	Munich	Shanghai	Washington DC
Istanbul	New York City	Singapore	
Jakarta	Paris	Stockholm	
Johannesburg	San Francisco Bay Area	Sydney	

In 2017 an additional 25 cities were added:

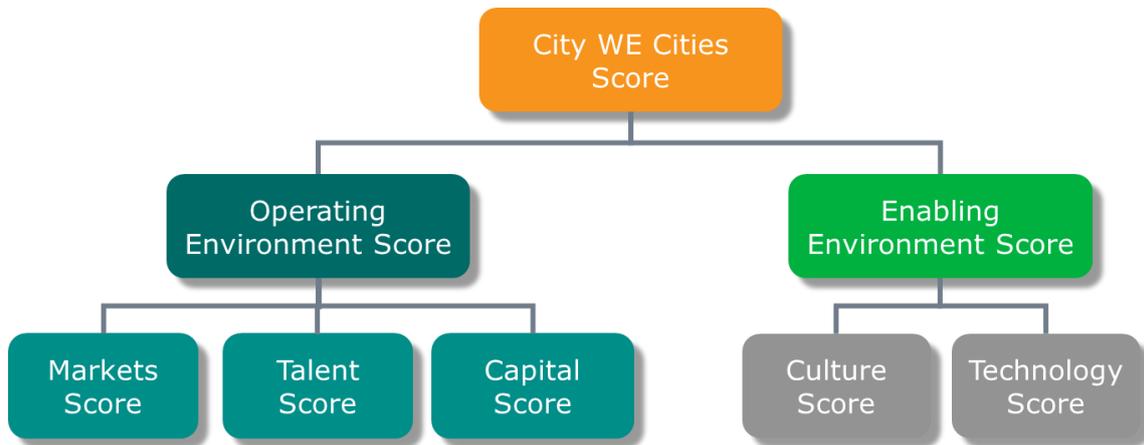
Pittsburg	Portland (Or)	Berlin	Nairobi
Boston	Houston	Copenhagen	Tel Aviv
Chicago	Atlanta	Dublin	Dubai
Los Angeles	Vancouver	Barcelona	Kuala Lumpur
Miami/ Ft. Lauderdale	Amsterdam	Warsaw	Bangalore
Minneapolis	Belfast	Melbourne	Guadalajara

25. Lima

Previous research by Dell in conjunction with their Dell Women's Entrepreneur Network (DWEN) found four critical pillars for HPWE: Markets, Capital, Talent and Technology. Subsequent to the Symposium and IHS' own research on the sub-components of these pillars (and corresponding metrics or indicators that could be used to measure each), IHS proposed the inclusion of a fifth pillar: Culture. This pillar captures women's role models, networks, attitudes and expectations as well as the policies that help shape a culture where women are seen as equal and have a level playing field.

Construction of the rating

The rating was constructed to measure the Operational and Enabling Environment each city provides for women entrepreneurs. Between these two foundational categories, more than 70 indicators are divided among 5 main pillars as follows:



The data collected to support each of these indicators was undertaken by IHS consultants, analysts, and country experts drawing from more than 10 global IHS offices and their own familiarity with that city or country's local language, culture and databanks. Further, to offset the challenge of finding globally comparable, government sanctioned, city-level, gender-specific data, IHS developed proxy indicators where necessary, and used innovative social media analytics and website scraping techniques to draw information from Twitter.com, Factiva's database of news articles, Crunchbase.com, and other websites that play a role in supporting the growth of women owned businesses.

In the 2017 Index, a few indicators were added and some replaced indicators in the 2016 index due to: (1) a better quality data source was found that was more comparable for all 50 cities or (2) a new data source was found that provided a better proxy measure of a sub-category (3) a new indicator was identified via our interview process

The overall enabling and operational environment, as well as the pillars, sub-categories, and individual indicators were weighted using four (4) criteria:

1. The relevance of the indicator for measuring what it is intended to measure (e.g. its ability to reflect city versus country level characteristics).
2. The quality of the underlying data for that indicator (e.g. comparability across cities, data collection methodology, etc.)
3. Its uniqueness in the index (e.g. whether it is measuring something that is also captured by other indicators included in the rating).

4. The gender-specific component (e.g. whether it is measuring something important to women entrepreneurs rather than entrepreneurs in general)

Differences between the 2016 and 2017 WE Cities Index

In the 2017 index 25 global cities were added. The index now relatively ranks 50 versus 25 cities. Some indicators needed to be adjusted or changed depending on the availability and comparability of data. Weights were also adjusted to account for the new data sources following our weighting criteria outlined above.

Specifically, the 2017 index now has 72 versus 71 indicators with changes detailed in Table 1

Table 1: Indicator differences

Pillar	2016 Indicators dropped or changed	2017 Indicators added or changed
Market	Transportation Cost	Cost of Living (includes Transportation)
Talent	Average % Business school enrollment in that city that is female	Ratio of Female/Male Individuals with MBA's
Talent	Female mentorship programs in place	Ratio of Women/Men with executive Experience
Talent		Female Faculty in top business schools (%)
Capital	<i>Top 20 Most Active Crowdfunding Sites</i>	<i>Amount Raised on Crowdfunding Sites</i>
Capital	<i>Number of crowdfunding platforms</i>	<i>Total Projects on Crowdfunding Sites</i>
Capital	Ratio Women/Men who saved to start a business	
Culture	% of women in parliament (moved to policy sub-category)	Entrepreneurial Network (population with entrepreneurial experience)
Culture	Women leader in the last generation	Number of national level advocacy or supplier dev't groups specifically for WE or businesswomen (dropped networking as primary function of the organization)
Culture	Intentional Homicide Rate (homicides for 100,000 population) (inverted)	Numbeo.com Worry about being attacked (inverted)
Culture	Requirements for women on boards or executive leadership	
Culture	Government explicit gender policy	
Technology	Gender equality in Twitter use: ratio of female/male (max = 1.0)	Gender equality in LinkedIn use: ratio of female/male (max = 1.0)
Technology		Number of Smart City Projects
Technology		<i>Gender equality in Facebook use: ratio of female/male (max = 1.0)</i>

Indicators and Sources

Indicators and Sources			
Pillar	Indicator	Description	Source
MARKETS	City Population	This indicator gives a general size of the market	Brookings.edu; IHS Sources; Eurostat; UN
MARKETS	GMP	This indicator gives a general size of the market and opportunity	Brookings.edu; IHS Sources
MARKETS	Forecasted economic growth rate of city/region or country over next 5 years	This indicator gives a general size of the market and opportunity	Brookings.edu; IHS Sources
MARKETS	Corporate Income Tax Rate	This indicator is inverted such that lower income tax rates are more beneficial for attracting and supporting entrepreneurship	Deloitte 2017
MARKETS	Cost of Living	This indicator is inverted such that lower cost of living; a cheaper cost of living allows women to put more capital towards scaling their business vs. overhead costs	2017 https://www.expatrian.com/cost-of-living
MARKETS	% Company Boardmembers that are Female	The more women on boards of companies signals willingness of companies to engage diversity (country level or avg from sample of city's top employers)	MSCI, WoB2020, IHS local sources
MARKETS	Accelerators (with WOB)	Accelerators provide a powerful way for entrepreneurs to scale their business through networking, training and access to capital	http://www.seed-db.com/accelerators/all ; https://www.f6s.com ; www.gan.co
MARKETS	Presence of a city portal/website for business creation (transparent process, centralized information, etc.)	A hurdle for starting and growing a business is often just knowing how to obtain the right permits and registration as well as knowing what resources the city provides. Many cities are providing portals as one stop shops for business owners to find all the relevant information they need.	google search and search of city government websites
MARKETS	Private sector – corporate vendor programs that try to get women owned businesses as vendors (Weconnect International)	Many entrepreneurs reach scale by becoming a supplier for a larger company. A hindrance is that women owned businesses are often discriminated against (intentionally or unintentionally) when it comes to winning lucrative contracts. Large companies in a city that are committed to diverse supply chains can help women entrepreneurs reach scale.	2017 Corporate Member list HQ and Staff Locations
MARKETS	Government goals for WOB procurement	Similar to private sector companies, many city governments are passing ordinances to ensure they have a diverse supply chain and give women owned businesses the opportunity to secure contracts.	google search and search of city government websites
MARKETS	Most female entrepreneurs as % of startups in city	Research and our interviews with women entrepreneurs shows that having more women entrepreneurs in the city can help foster female entrepreneurship.	Crunchbase 2017
MARKETS	Ease of starting a business	Lower barriers to starting a business is a first step to scaling.	2016 PWC
TALENT	Labor force participation rate (women age 15+)	Women's ability to participate in the labor force is often a first step to gaining the experience required to run a business.	IHS, Inc. Country statistical agency
TALENT	Business management or finance training courses or programs for WE or women executives	Women's ability to scale often requires skills in finance and business management.	2017, Goldman Sachs 10000 Women partner locations, PWN locations, US SBA Womens Center locations, google search (max =5)
TALENT	Ratio of Women/Men with executive Experience	This indicator shows whether women are proportionately gaining executive experience that could be transferred to scaling a business.	2017 LinkedIn
TALENT	% of population with tertiary education or above	An educated workforce is often a pre-requisite to getting the talent a women owned business needs in order to scale.	IHS, Country statistics

TALENT	% of female population with tertiary education or above	This is an indication of both womens own education and educational equality that signals whether women are getting educational opportunities that could help them scale a business.	IHS
TALENT	% of Labor Force in Professional Services (finance, marketing, accounting, law) within city	This is an indication of whether necessary talent is available for women that want to scale their business.	2017 LinkedIn
TALENT	% of Labor Force who are IT professionals	In today's internet and enterprise software driven environment, businesses that want to scale need a sophisticated IT staff.	2017 LinkedIn
TALENT	Number of accredited business schools in city	Many new businesses are birthed in business schools where writing business plans and running a business is part of the curriculum.	FindMBA.com, IHS
TALENT	Number of globally top-ranked business schools in city	Topped ranked business schools tend to attract people with talent and vision that can be catalysts for scaling a business.	2017, Financial Times Global MBA Ranking
TALENT	Average % enrollment in top universities that city who are female	This is an indication of the equality of opportunity for women in higher education. It is a proxy for the attractiveness of the city for women in general and women entrepreneurs in particular.	2017 Time Higher Education Global Ranking
TALENT	Ratio of Female/Male Individuals with MBA's	This is both an indication of equality and a proxy for the potential for women entrepreneurs in the city, since MBA programs can be a place where business ideas are hatched.	2017 LinkedIn
TALENT	Female Faculty in top business schools (%)	Studies have shown that one reason women drop out of business school programs is due to a lack of female faculty role models.	2017 FT and individual searches at top business school in city
TALENT	Number of top ranked global universities in city	Top ranked universities attract talent to the city.	2017, US News & World Report, Best Global Universities, 2017 Rankings
TALENT	Top Ranked University in that City (inverted)	Top ranked universities attract talent to the city.	2017, US News & World Report, Best Global Universities, 2017 Rankings
CAPITAL	Value of VC funds given to businesses with at least 25% female executives	Indicates relatively how well women owned businesses are attracting funding from VCs (a powerful source of capital for scaling and where women have historically not done comparatively well).	2017 crunchbase
CAPITAL	Number of female founders or executives in 2nd round or higher funding round in the city	Indicates relatively how many women in the city are trying to scale and their success at getting to higher rounds of funding.	2017 crunchbase
CAPITAL	Most active Corporate VC Firms (top 50)	Corporate VC is another source of capital and their prevalence in a city indicates an additional access point for capital.	2017 cbinsights
CAPITAL	Number of potential investors (population of HNWI)	Women often rely on friends and family for funding. This indicates the prevalence of qualified investors in the city that could be potential investors for women entrepreneurs.	2016 Frank Knight Wealth Report; Phoenix Marketing International 2016; IHSM calculations
CAPITAL	% of total investment companies with at least 1 female executive	Research shows that investment companies or VCs with women executives or partners tend to invest more in women entrepreneurs.	2017 crunchbase
CAPITAL	% of city businesses in 2nd round or higher funding round with a woman founder or executive	This indicates whether women are proportionately getting to higher rounds of funding (scaling).	2017 crunchbase
CAPITAL	Number of weeks of paid maternity leave (full pay or partial pay)	Taking time off to start and grow a family causes women to lose income that provides a base to build wealth. To the extent that this income is not disrupted women are better able to accumulate wealth to invest in their own business or in others.	google search of individual city policies on maternity leave
Capital	Number of Women Founded VC Firms	Research shows that women who found VC firms are more likely to invest in diverse businesses. Thus this indicator is a proxy for gender proportionate funding	2017 crunchbase
CAPITAL	% of VC funds given to businesses with at least 25% female executives	This indicates whether women are getting proportional access to funding.	2017 crunchbase

CAPITAL	Amount Raised on Crowdfunding Sites	Crowdfunding may help level the playing field for women entrepreneurs when it comes to attracting capital. The relative amounts funded in the city is a proxy for greater access to capital for WE.	2017 kickstarter.com and city specific equivalents
CAPITAL	Measure of Equality: Women/Men who saved to start, operate or expand a farm or business	Many women use personal savings to start a business. However saving may be more difficult for women if, for example, their income is interrupted. This is an indication of equality both of the ability to save and aspiration for starting a business.	World Bank 2014
	Total Projects on Crowdfunding Sites	Crowdfunding may help level the playing field for women entrepreneurs when it comes to attracting capital. To the extent sites are active in the city is a proxy for greater access to capital for WE.	2017 kickstarter.com and city specific equivalents
CAPITAL	VC's with 25% partners who are female?	Research shows that investment companies or VCs with women executives or partners tend to invest more in women entrepreneurs.	2017 Crunchbase
CULTURE	Presence of role models: # of globally recognized successful WE	Women often don't dream big because they don't see other women scaling businesses. This indicates how many local role models women in the city have when it comes to being a successful WE.	IHS, 2017 [a combination of Forbes 2000 CEOs, Fortune 500 CEOs, and Forbes 100 most powerful women]
CULTURE	Female Mayors in last 3 terms	Females in political leadership can be both role models and also help influence legislation that provides a level playing field for women.	IHS, 2017 (google search)
CULTURE	Number of national level advocacy or supplier dev't groups specifically for WE or businesswomen	Organizations that advocate for WE and/or help WE secure contracts with governments and larger companies helps WE scale and helps to change the perception about WE. Cities do not operate in a vacuum and often national level policies and culture can permeate to cities.	IHS, 2017 (WEConnect International locations, BPW-International locations, WBE and WBNEC (regional locations), Women Entrepreneurship Platform locations, WBII members, as well as country specific searches)
CULTURE	Number of city level organizations specifically for WE or businesswomen	City level organizations can provide valuable networking, education and advocacy that can help WE scale.	IHS, 2017 - meetup.com
CULTURE	Number of city level organizations specifically for entrepreneurs		IHS, 2017
CULTURE	% of women on boards of major business associations' (e.g. Chamber or other influential business group)	Having women on boards of business associations helps women better network with other businesses and helps foster a more diverse business environment in the city.	IHS, 2017 google search
CULTURE	Number of female leaders of major city business associations	Having female leaders of business associations helps women better network with other businesses and helps foster a more diverse business environment in the city.	IHS, 2017 google search
CULTURE	% of major city business associations headed by female leaders	While absolute numbers are important, representation is also key. This shows whether women are proportionately represented in leadership in the business community of the city.	IHS, 2017 google search
CULTURE	Frequency of City events for WE or businesswomen	City level events for WE or businesswomen help women network and gain critical skills.	IHS, 2017; Meetup.com
CULTURE	Ratio of positive to negative Tweets about women	This is a measure of the overall attitude of the city towards women. Often negative messages can have a bigger influence on women's aspirations and self perceptions than positive messages. This indicator measures the ratio of positive to negative messages towards women.	Twitter/ Janys, 2017 (number per capita)
CULTURE	% of relevant articles on successful " women entrepreneurs " in Media for that city	Hearing about role models in the media is another way that helps women dream big.	2012-2017 (5 years) Factiva
CULTURE	Numbeo.com Crime Level (inverted)	Crime and Safety are key concerns for any business, but women in particular tend to evaluate their safety more when deciding whether to scale a business.	Numbeo.com 2017

CULTURE	Numbeo.com Safety Scale	Crime and Safety are key concerns for any business, but women in particular tend to evaluate their safety more when deciding whether to scale a business.	Numbeo.com 2017
CULTURE	Numbeo.com Worry about being attacked (inverted)	Crime and Safety are key concerns for any business, but women in particular tend to evaluate their safety more when deciding whether to scale a business.	Numbeo.com 2017
CULTURE	Collection of city level data on income or employment by gender	This provides an indication of whether the city is concerned about gender equality - particular on economic issues which are critical for WE. What gets measured gets managed - so we include this indicator as a measure of a culture that values gender equality.	IHS, 2017 google search and government website search
CULTURE	Presence of city and/or national level policy advocacy organization specifically for women's equality issues	Organizations committed to women's equality and rights have helped to change the culture and provided women with more freedom - a prerequisite for scaling a business.	World Bank, IHS
CULTURE	Policy for "equal remuneration for work of equal value" (fair pay)	This is another indication of a culture that values gender equality. It is also critical that women earn their economic worth so they can build their savings and wealth.	World Bank, IHS
CULTURE	Policy for "nondiscrimination based on gender in hiring"	This is another indication of a culture that values gender equality. It is also critical that women have equal opportunity in the workplace so they can gain critical skills and experience needed to scale a business.	World Bank, IHS
CULTURE	Paid Maternity leave policy	This is a binary (y/n) indicator that proxies for a culture that is trying to level the playing field for women.	World Bank, IHS
CULTURE	Paid paternity leave policy	This is a binary (y/n) indicator that proxies for a culture that is trying to level the playing field for women.	IHS
CULTURE	Entrepreneurial Network (population with entrepreneurial experience)	Our research found that having other entrepreneurs nearby was valuable for networking and providing help and advice.	2017 LinkedIn
CULTURE	% of women in parliament	Women in leadership are both role models and can put forth legislation that helps level the playing field for women.	Search of websites
TECHNOLOGY	% of women who use the internet	Access to the internet is becoming a necessity for fully engaging with the global economy. This indicator measures the extent that women have access.	2017 consumerbarometer.com (country level); US cities (2015 Pew Research Survey state level)
TECHNOLOGY	% of women with smart phones	Smart phones are also becoming a necessity as both a communication source, information source and increasingly a source of engaging in commerce. This indicator measures the extent to which women are using smartphones.	2017 consumerbarometer.com (country level); US cities (2015 Pew Research Survey state level)
	Measure of equality female/male used an account to make a transaction through a mobile phone	This provides an indication of whether women are using technology to engage in economic transactions. This is both a measure of equality and a measure of women's willingness to use technology for economic purposes.	Country level WB 2014
TECHNOLOGY	Gender equality in LinkedIn use: ratio of female/male (max = 1.0)	This is an indication of whether women are equally engaging in professional social media.	2017 LinkedIn profile search
TECH NOLOGY	Inverse of Average Monthly Cost of Internet (8MB speed) USD	Cost can be a hindrance to access as well as a hindrance to scaling a business, this measures the relative cost of basic technology.	2017 https://www.expatrian.com/cost-of-living
TECHNOLOGY	Inverse of Average Cost 1 min. of prepaid mobile tariff (no discounts or plans) USD	Cost can be a hindrance to access as well as a hindrance to scaling a business, this measures the relative cost of basic technology.	2017 https://www.expatrian.com/cost-of-living
TECHNOLOGY	Open Data Initiatives	Open data is way for cities to share the data collected and generated by people in the city. This data can be used by entrepreneurs to help find solutions to common constraints in the city. It also signals a transparency on the part of city government - this transparency can help ensure that there is a level playing field.	2017 Google Search
TECHNOLOGY	Access to open and flexible technology	Many businesses that want to scale rely on open technology and flexible standards that allow them to more quickly scale their operations at a lower cost.	2017 HQ cities of member companies http://www.opencompute.org/about/membership-organizational-directory/

TECHNOLOGY	Technology training organizations for women	Technology can be intimidating for anyone. Women who want to scale their business need to have basic skills in utilizing technology. Classes specifically for women are also less intimidating/more inviting for women.	2017 Women Who Code, Girls in Tech, other
TECHNOLOGY	Does the city collect use of technology by gender	Technology is increasingly critical for any business to scale. Cities that collect gender level data on technology use and access can better monitor and manage how well their city is doing in leveling the playing field for women.	2017 google search
TECHNOLOGY	Number of Smart City Projects	Smart city projects help to optimize city functions making it more friendly for business and well as signaling the potential for more innovation (attracting entrepreneurs).	IHSM Smart Cities IoT Intelligence Service (2017)
TECHNOLOGY	Gender equality in Facebook use: ratio of female/male (max = 1.0)	This provides an indication of how equally women are engaging with social media, which is increasingly becoming a place to exchange ideas and information.	2017 Facebook search
TECHNOLOGY	Per capita number of open development users	Open development platforms provide a place for developers and users of software applications to meet. These development platforms have allowed entrepreneurs to scale their businesses more quickly and/or at lower cost.	www.github.com

About IHS Markit

IHS Markit (NYSE: INFO) is the leading source of insight, analytics and expertise in critical areas that shape today's business landscape. More than 3,800 business and government clients around the globe rely on the comprehensive content, expert independent analysis and flexible delivery methods of IHS Markit to make high-impact decisions and develop strategies with speed and confidence. IHS Markit operates with a team of more than 5,000 analysts, data scientists, financial experts and industry specialists in 25 offices in the US, Canada, Asia, Europe, the Middle East and Africa.

IHS Markit's Economics and Country Risk (ECR) business unit offers economic and financial analysis, forecasting, and market intelligence for over 200 countries worldwide and coverage of over 170 industries that helps clients to monitor, analyze and interpret conditions affecting their business. Our staff of economists, analysts and industry experts provides clients with subscription forecasts, specialized consulting support, and access to historical and forecast databases and economic software and data services. We provide expertise in international macro economies, individual industries, financial markets, trade, transportation and economic modelling.

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DWEN WE Cities Research - 2018



Press Release

New Dell Research Ranks 10 Cities Globally on Ability to Foster Women Entrepreneurship

Reveals rankings and provides recommended blueprint action plans for Austin, Boston, Mexico City, Toronto, London, Amsterdam, Sydney, Tokyo, Sao Paulo and Singapore

TORONTO, July 16, 2018 /PRNewswire/ --

- Dell advises city leaders, entrepreneurs and policy-makers on how to improve conditions that enable women-owned firms to thrive
- Developed a deep dive analysis on the barriers and opportunities for women entrepreneurs accessing Capital and leveraging Technology to scale
- Revealed 10 Women Entrepreneur (WE) City Blueprints designed to spotlight actions a city can take to improve the ecosystem for women entrepreneurs
- The Dell WE Cities Index is the only global, gender-specific index that looks at a city's ability to attract and retain women entrepreneurs

At the 9th annual Dell Women Entrepreneur Network Summit (DWEN) kicking off today in Toronto, Dell unveiled new diagnostic tools for local governments and policymakers to help enable women entrepreneurs to succeed.

Built on the findings of the 2017 Women Entrepreneur Cities (WE Cities) Index Dell, with research partner IHS Markit conducted a deep-dive analysis' on the barriers and opportunities for women entrepreneurs accessing capital and leveraging technology to scale. Dell also developed 10 city blueprints designed to spotlight actions a city can take to improve the local ecosystem for women entrepreneurs.

"Women's entrepreneurship rates rose globally by 13 percent in 2017, reflecting broader momentum of increased female representation across the public and private sectors in many regions around the world. However, access to capital and technology, as well as cultural and political barriers, continue to limit the success of women-owned businesses," said Karen Quintos, executive vice president and chief customer officer at Dell. "With the release of the WE City Deep Dives and Blueprints, city leaders and policymakers can confidently move from 'analysis to action,' accelerating positive change that allows women entrepreneurs to thrive – which benefits local communities, wider society and the global economy."

continued

"According to extensive data and analysis, when barriers to women entrepreneurship are removed, there is a dramatic uplift in a city's economic prospects," said Cris Turner, vice president of Government Affairs at Dell. "The WE City Deep Dives and Blueprints offer insights on what cities on the list can learn from one-another and encourage political action to attract and support women entrepreneurs at the local level."

WE City Blueprints

The WE City Blueprints look at areas of strength and areas of improvement to provide city leaders and policymakers with data-driven research and recommendations on how to foster high-potential women entrepreneurs. Blueprint cities include:

- Austin
- Boston
- Mexico City
- Toronto
- London
- Amsterdam
- Sydney
- Tokyo
- Sao Paulo
- Singapore

WE City Capital and Technology Deep Dives

Capital and technology are critical for scaling any business, but women face unique challenges with both. In 2017, only 2 percent of venture funding went to female founders. Based on the qualitative analysis of the WE Cities Index and insights from members of the DWEN network, many women entrepreneurs are not leveraging innovative technologies to scale their businesses. The WE City Capital and Technology deep dives uncover:

- How women entrepreneurs are accessing capital, using technology
- How different regions are accessing different sources of capital, using technology
- Industries that women entrepreneurs gravitate towards and how it impacts access to capital and technology
- How access to capital and use of technology differ across leading cities

continued

WE Cities Ranking and Methodology

Built on the past six years of Dell research on High Potential Women Entrepreneurs (HPWE), cities were ranked on five important characteristics: capital, technology, talent, culture and markets. These pillars were organized into two groups — operating environment and enabling environment. The overall rating is based on 72 indicators; 45 of these (nearly two-thirds) have a gender-based component. Individual indicators were weighted based on four criteria: relevance, quality of underlying data, uniqueness in the index and gender component.

The 50 cities were ranked as follows:

- | | | |
|---------------------|----------------------------|------------------|
| 1. New York City | 18. Atlanta | 35. Warsaw |
| 2. Bay Area | 19. Amsterdam | 36. Belfast |
| 3. London | 20. Portland (OR) | 37. Milan |
| 4. Boston | 21. Berlin | 38. Beijing |
| 5. Stockholm | 22. Taipei | 39. Tokyo |
| 6. Los Angeles | 23. Pittsburgh | 40. Bangalore |
| 7. Washington, D.C. | 24. Tel Aviv | 41. Kuala Lumpur |
| 8. Singapore | 25. Copenhagen | 42. Sao Paulo |
| 9. Toronto | 26. Vancouver | 43. Dubai |
| 10. Seattle | 27. Houston | 44. Shanghai |
| 11. Sydney | 28. Johannesburg | 45. Mexico City |
| 12. Paris | 29. Barcelona | 46. Lima |
| 13. Chicago | 30. Seoul | 47. Guadalajara |
| 14. Minneapolis | 31. Munich | 48. Istanbul |
| 15. Austin | 32. Miami / Ft. Lauderdale | 49. Delhi |
| 16. Hong Kong | 33. Nairobi | 50. Jarkarta |
| 17. Melbourne | 34. Dublin | |

About the Dell Women's Entrepreneur Network and Annual Summit

As the visionary outcome of a true entrepreneur, Dell is committed to help power the success of entrepreneurs by developing technology solutions that enable human potential. Through the Dell Women's Entrepreneur Network, Dell supports and nurtures a community of female entrepreneurs by providing access to technology, networks and capital.

Dell is excited to host the 9th annual Dell Women's Entrepreneur Network (DWEN) Summit in Toronto from July 15-17, 2018. More than 150 female founders, CEOs, dignitaries, Dell Leaders and more will convene to connect and discuss today's pressing topics. Through inspiring keynotes, informative panels and innovative workshops, the 2018 DWEN Summit will be the go-to resource for support and solutions that facilitate entrepreneurship. It is Dell's mission to bring vital knowledge and tailored technology for women-led companies small and large.

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About Dell Inc.

Dell Inc., a part of Dell Technologies, provides customers of all sizes – including 99 percent of the Fortune 500 – with a broad, innovative portfolio from edge to core to cloud. Dell Inc. comprises Dell client as well as Dell EMC infrastructure offerings that enable organizations to modernize, automate and transform their data center while providing today's workforce and consumers what they need to securely connect, produce, and collaborate from anywhere at any time.

<https://www.prnewswire.com/news-releases/new-dell-research-ranks-10-cities-globally-on-ability-to-foster-women-entrepreneurship-300681427.html>