

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:

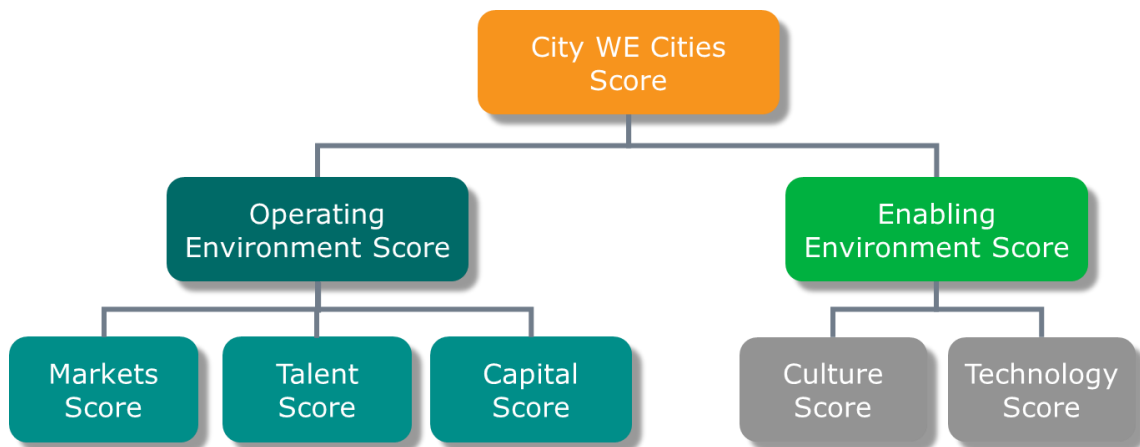
Pittsburg	Portland (Or)	Berlin	Nairobi
Boston	Houston	Copenhagen	Tel Aviv
Chicago	Atlanta	Dublin	Dubai
Los Angeles	Vancouver	Barcelona	Kuala Lumpur
Miami/ Ft. Lauderdale	Amsterdam	Warsaw	Bangalore
Minneapolis	Belfast	Melbourne	Guadalajara

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.expatistan.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 cbsights
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

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