



DELL WE CITIES 2017

Rating Global Cities' ability to attract and support High Potential Women Entrepreneurs

June 2017



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PART I:

Scoring 50 Global Cities



Overview

The Dell Women Entrepreneur Cities Index (WE Cities) is

- a measure of a city's ability to attract and support high potential women entrepreneurs (HPWE) i.e., women that want to grow and scale their business.

50 ranked cities chosen for

- their reputation as established or emerging hubs of innovation and entrepreneurship;
- geographic diversity was also a criteria in city selection.

Cities included in the WE Cities rankings are already strong in commercial entrepreneurship

- Strength in *entrepreneurship, though, is not necessarily strength for women entrepreneurs*

We provided additional detailed analysis:

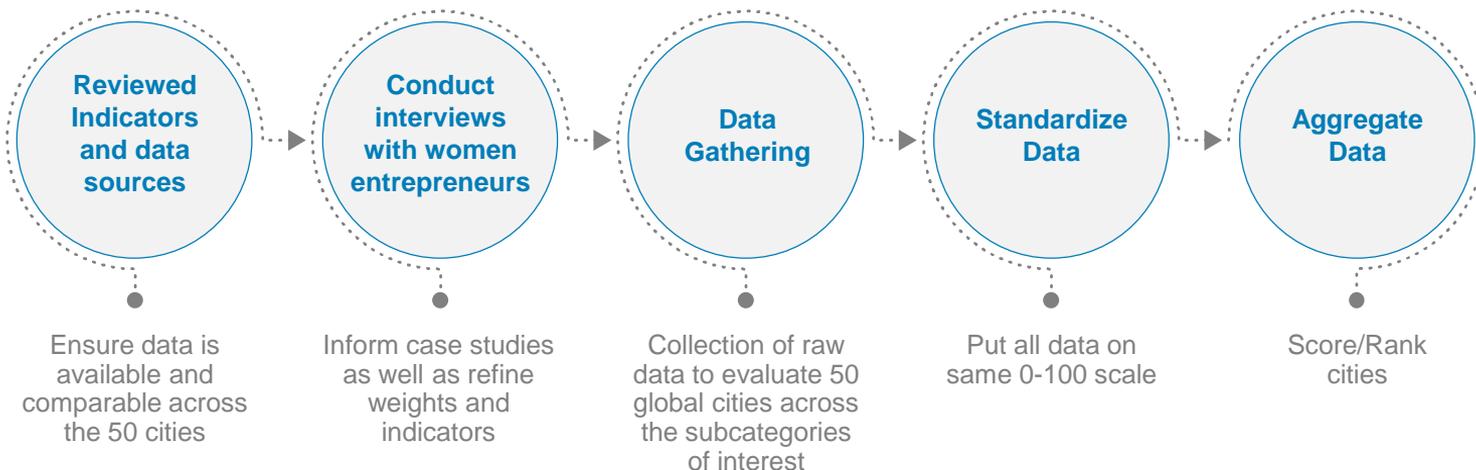
- 5 deep dive case studies were provided separately: *London, Sao Paulo, the Bay Area, Austin* and *Sydney* to better understand how the numbers behind the WE Cities Index look in context.
- 25 city profiles are also provided separately to help illustrate how cities can capitalize on their strengths and improve areas of weakness.

Methodology*

In April 2016 a Symposium bringing together women entrepreneurs, policy makers, venture capitalists, the media and academics was hosted in NYC by the Technology and Entrepreneurship Center at Harvard (TECH).

The symposium informed the sub-categories, indicators and weightings of the Dell WE Cities Index.

For the 2017 update, in addition to adding 25 new cities we:



The Index Construction | Details

The rating has 5 pillars, divided into 2 categories with 4 criteria for weighting:

OPERATIONAL
ENVIRONMENT

Capital
Markets
Talent

ENABLING
ENVIRONMENT

Culture
Technology

*Almost all pillars contain a **Policy** sub-category that captures many of the important policies that help level the playing field for women entrepreneurs.*

Weighting Criteria

1. Relevance
2. Quality of underlying data
3. Uniqueness in the index
4. Contains a gender specific component

The Index Construction | **Details** (CONTINUED)

- The rating is meant to highlight **relative** strengths and weaknesses
 - Robust data-driven analysis covering a multitude of factors, which can help cities leverage their strengths to improve areas where they are less competitive.
 - Indicators measure the **inputs** (or drivers) that attract and support HPWE rather than **outcomes** (the presence of HPWE in the city)
- A tool for cities that helps provide insight to develop actionable strategies for improving cities' ability to attract and support HPWE.
- **The rating has 72 indicators.** Of these:
 - Almost two-thirds (45) have a gender-based component.
 - The vast majority (93% or 67 indicators) were specific to the city/MSA level (rather than country-level).
 - All Indicators use the most current data available, much of it 2016-2017.*
 - The Index incorporates unique data indicators constructed from sources such as: IHSM Smart Cities IoT Intelligence Service, Crunchbase, Github, WEConnect International, Twitter and LinkedIn.

*Data is 2014 or newer except in a few instances where data was not available and older data was used to inform the indicator for the city.

WE Cities Index

PILLARS AND SUB-PILLARS

OPERATING ENVIRONMENT

ENABLING ENVIRONMENT

Markets

Talent

Capital

Culture

Technology

The Markets category measures whether the female entrepreneur operates in a market with sufficient **size** such that scale can be achieved, the **cost** of being a profitable business in that market, the transparency and clarity of steps or ladders to gain **access** to potential customers in that market and the local **policies** that help level the playing field for women owned businesses.

The Talent category measures both the likelihood of finding **women with the training and experience required to run and scale a business** and the availability of a **local labor force with the skills and education necessary** for a woman entrepreneur to build a well functioning team.

As financial Capital is fundamental for businesses seeking to scale but is often particularly hard for women entrepreneurs to access, this category measures the **frequency and value of funding** received by women led businesses, the **proportion of funding** that businesses run by women (compared to men) receive, and the **capital base** that women can draw on.

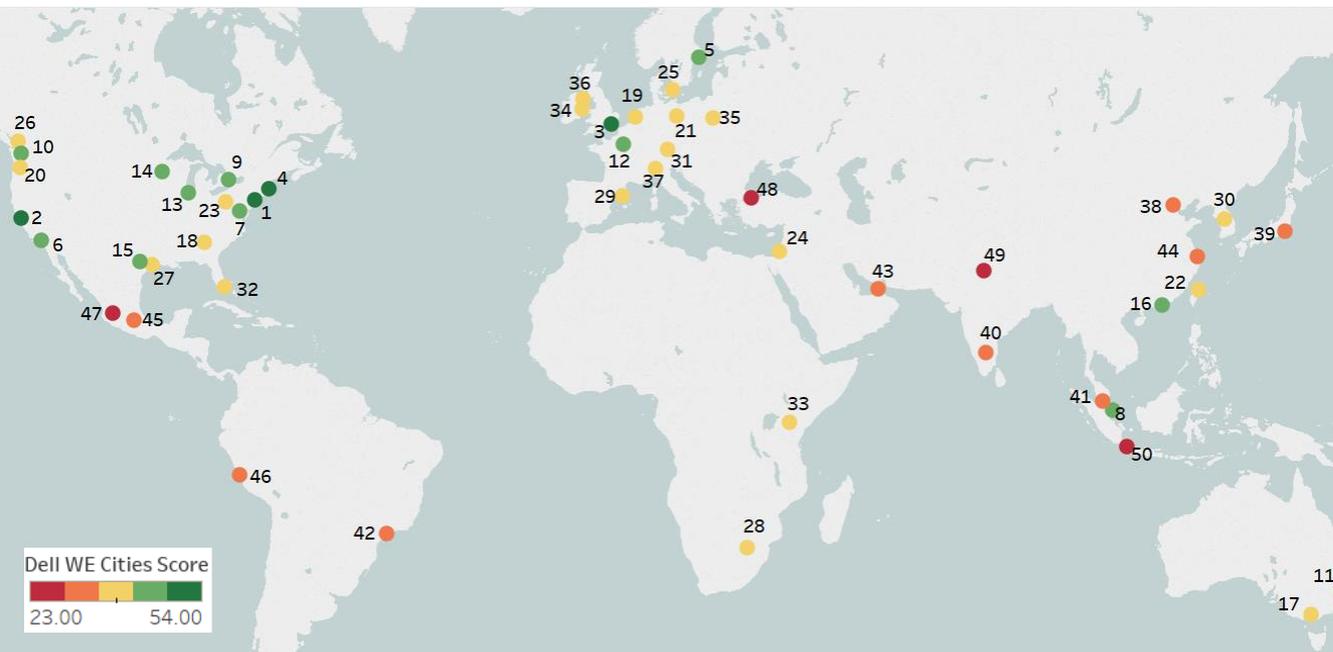
A city's Culture, while less tangible, is believed by women entrepreneurs to be a critical enabler for their participation in commerce. This category measures the prevalence of relevant **mentors, networks, and role models**, the predominant **attitudes & expectations** of that society toward women entrepreneurs that help shape their own expectations, and the **policies** that enable women to assume leadership positions and business success.

Often taken for granted until it is not there, Technology has become critical for running nearly all business operations. This category measures women entrepreneurs' global **connectivity** via the internet and social media channels, the **cost** of staying connected, and **policies** that enable women to access and utilize information, data and technology.



Dell Global WE Cities Rankings 2017

CITIES IN RANKING ORDER



1. New York	18. Atlanta	35. Warsaw
2. San Francisco	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, DC	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	49. Delhi
16. Hong Kong	33. Nairobi	50. Jakarta
17. Melbourne	34. Dublin	

Dell Global WE Cities 2017

TOP 10

New York
Bay Area

London
BOSTON

Stockholm
LOS ANGELES

Washington, D.C.
Singapore

Toronto
Seattle

OPERATING ENVIRONMENT

ENABLING ENVIRONMENT

Markets Top 10

New York City
Bay Area
London
CHICAGO
KUALA LUMPUR
Seattle
TEL AVIV
BERLIN
Washington, D.C.
BANGALORE

Talent Top 10

Washington, D.C.
Paris
BOSTON
MINNEAPOLIS
London
New York City
BARCELONA
Bay Area
Beijing
Stockholm

Capital Top 10

Bay Area
New York City
London
BOSTON
LOS ANGELES
NAIROBI
Singapore
CHICAGO
Stockholm
Beijing

Culture Top 10

New York City
Sydney
Toronto
Stockholm
Singapore
Bay Area
LOS ANGELES
MELBOURNE
AMSTERDAM
MINNEAPOLIS

Technology Top 10

Austin
London
Stockholm
New York City
Hong Kong
Seattle
Bay Area
MIAMI/FT. LAUDERDALE
BOSTON
Singapore



Comparison of US Cities

METRO AREA	OVERALL RANK	OPERATING ENVIRONMENT RANK	MARKETS	TALENT	CAPITAL	ENABLING ENVIRONMENT RANK	CULTURE	TECHNOLOGY
New York City	1	1	1	6	2	1	1	4
Bay Area	2	2	2	8	1	7	6	7
BOSTON	4	4	12	3	4	11	12	9
LOS ANGELES	6	8	21	14	5	9	7	12
Washington, D.C.	7	5	9	1	15	19	22	16
CHICAGO	13	6	4	11	8	22	28	11
Seattle	10	9	6	20	18	8	14	6
MINNEAPOLIS	14	10	19	4	25	16	10	28
Austin	15	20	16	23	24	13	39	1
PORTLAND (OR)	20	24	17	28	35	18	26	13
PITTSBURGH	23	28	20	30	40	24	20	24
ATLANTA	18	16	18	15	32	25	21	27
HOUSTON	27	14	15	13	19	38	41	29
MIAMT/FT. LAUDERDALE	32	32	35	18	43	31	45	8



HIGHLIGHTS FROM THE RATING: Things to Note

*In the top 10 cities overall
6 are in the U.S., 2 are in
Europe, 1 is in Canada
and 1 is in Asia*

*Of the top 10 cities overall,
NYC, the Bay Area rank in
the top 10 on all 5 pillars*

*41 of the cities in this
index are in the top 5
for at least one pillar
or sub-category; 34 of
the cities are in the
bottom 5 for at least
one of the pillars or
sub-categories –
demonstrating the
competitiveness of
these 50 cities*

*Of the cities in the
top 10 cities overall
only NYC and D.C.
rank in the bottom
5 on any pillar or
sub-category (NYC
for cost of Market
access and NYC
and D.C. for cost
of Technology).*

HIGHLIGHTS FROM THE RATING: *View of the top* TOP 5

1

NYC

NYC ranks 1st overall among the 50 cities for its ability to attract and support HPWE with a top-ranked **Operating Environment** and an **Enabling Environment**. While NYC ranks first for **Markets**, and within that, **Access** and **Policy**, it is 6th in **Talent**, and 2nd in **Capital**, trailing only the San Francisco Bay Area. It is 1st in **Culture**, though 4th in **Technology**.

2

THE BAY AREA

(consisting of the San Francisco and San Jose metro areas)
The Bay Area ranks 2nd overall, ranking 2nd for **Operating Environment** and 7th for **Enabling Environment**. It ranks 1st for **Capital**, 2nd for **Markets**, 8th in **Talent**, 6th in **Culture**, and 7th in **Technology**.

3

LONDON

London ranks 3rd overall and in **Operating Environment**, performing 3rd for **Markets** and for **Capital**. It ranks 4th in **Enabling Environment**, with a 2nd place, to Austin, in **Technology** and 11th in **Culture**.

4

BOSTON AND STOCKHOLM

Boston and Stockholm round out the top 5 in the overall ranking.

Boston is 4th in **Operating Environment**, reaching 3rd in **Talent** and 4th in **Capital**.
Stockholm ranks 2nd in **Enabling Environment**, reaching 3rd in **Technology** and 4th in **Culture**. It also ranks 10th in **Talent** and 9th in **Capital**.

5



HIGHLIGHTS FROM THE RATING: *View of the top* TOP 10

6

LOS ANGELES

(6th overall) ranks 5th for **Capital** and 7th for **Culture** and 8th for the overall **Enabling Environment**.

7

WASHINGTON, DC

(7th overall) excels in the **Operational Environment** foundational pillar (5th), ranking 1st for **Talent** - topping the list for **Women's Skills & Experience** and 9th for **Market**.

8

SINGAPORE

(8th overall) ranks 7th in **Capital**. It is 6th in **Enabling Environment**, with a 5th in **Culture** and 10th in **Technology**.

9

TORONTO

(9th overall) ranks 3rd in **Culture**, 4th for related **Policy**, It also ranks 5th in **Cost of Markets** and 7th in **Women's Capital Base**.

10

SEATTLE

(10th overall) ranks 6th in **Markets** and 4th for **Market** policy and **Connected Technology**; it ranks 8th for **Culture** and **Value** and **Number of Funding for Women Entrepreneurs (Capital)**



HIGHLIGHTS FROM THE RATING: Cities to Watch

CHICAGO (13th overall)

ranks 7th for *Connected in Technology*, ranking 4th for *Markets*, driven by its 4th place ranking in *Market Policy*

KUALA LUMPUR (41st overall)

ranks 5th in *Markets*, ranking 1st in *Cost* and 6th in *Access*. It ranks 8th in *Women's skill & experience* (Talent).

PARIS (12th overall)

ranks 2nd in *Talent*, ranking 1st in *Access to Qualified Personnel*. It ranks 7th for *Operating Environment*, ranking 4th in *Market Access*.

TEL AVIV (24th overall)

ranks 7th in *Markets*, led by 7th in *Policy*. It also ranks 9th in *Value and Numbers of Funding* (Capital) and women get a *proportionate amount* (ranking 4th).

BERLIN (21st overall)

ranks 8th in *Markets*, led by 5th in *Access*. It ranks 3rd in *Technology Cost* and 13th in *Attitudes & Expectations* (Culture).

MINNEAPOLIS (14th overall)

ranks 2nd for *Mentors & Role Models* and for *Women's skill & experience*.

NAIROBI (33rd overall)

ranks 6th in *Capital*; although Nairobi ranks on the lower side for *Women's Capital Base* (48th) it makes up for it in *Gender Proportion in Funding* (1st).

HIGHLIGHTS FROM THE RATING: Strengths to Leverage

MIAMI (32nd overall)

ranks 4th in terms of its technology policy, notably it is one of the few cities to collect gender level data on technology use.

GUADALAJARA (47th overall)

ranks 3rd for *Market Cost* and 11th in *Technology Cost*. It can leverage these strengths by improving policy in these two pillars where it ranks 43rd and 49th respectively.

LIMA (46th overall)

ranks lowest in Capital, ranking in the bottom 10 for all the Capital categories. It can perhaps leverage its relatively good *access to markets* (13th) to attract more talent (43rd) and capital.

DELHI (46th overall)

despite ranking 49th overall can leverage its Market Size (ranking 3rd) and low cost of technology (ranking 2nd) to help improve its talent base (where it ranks 50th)

WARSAW (35th overall)

ranks 3rd in *Women's Skill & Experience*, but is held back with a ranking of 27th in *Access to Qualified Personnel*. It can leverage its 1st place rank in the *cost of technology* to attract talent and grow its market size (33rd) if it can improve its *policies* that enable women access to markets (48th).

Note on Comparing to WE Cities 2016



DIFFERENCES
BETWEEN THE

2017 and 2016 Index

50 versus 25 global cities

72 versus 71 indicators

Weighting of indicators, sub-categories and pillars changed slightly to account for new data sources, comparability and effective weights.

2 indicators were re-assigned under the capital sub-categories.

Due to the differences between the 2016 and 2017 Index, comparisons cannot be made on an apples to apples basis.

The 2016 index provided the pilot version of the index to test its ability to score cities on its ability to attract and support high potential women entrepreneurs.

This successful pilot led to the scaling this year to a 50 cities WE Cities Index that incorporates the learning from the 2016 Index.

In the 2017 we added the new 25 cities and only updated the data for the 25 original cities when there was a new indicator, data collection/criteria method or for the indicators that required real time data (e.g., some of the website scraping for current member lists, etc.)

SELECT COMPARISONS BETWEEN THE

2017 and 2016 Index

Given the differences between the two years, we cannot compare the scores or rankings directly between the two years.

While we cannot compare scores or ranks across the years, we can see that the leading cities for high potential women entrepreneurs are unchanged.

However, on the indicators that are the same we can make some comparisons.

These include:

- Austin has notably improved in its access to capital for women, both by having more women businesses funded than last year and having more women founded VC firms.
- All 25 cities in the Index last year increased the number of accelerators in their city.
- Nearly all cities have also seen an increase in the number of news articles about successful women entrepreneurs or business women.
- The biggest improvements across most of the original cities is in the area of Markets and Capital, where many cities saw an increase in the number of accelerators as well as an increase in the amount of funding going to women entrepreneurs, perhaps helped by an increase in the number of female founded VC's in many cities.

Changes to Proxy Indicators

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	Top 20 Most Active Crowdfunding Sites	Amount Raised on Crowdfunding Sites
Capital	Number of crowdfunding platforms	Total Projects on Crowdfunding Sites
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		Gender equality in Facebook use: ratio of female/male (max = 1.0)



Appendix

- A** WE Cities Scoring Methodology
- B** How this rating differs from other entrepreneurship measures
- C** How to read the Rating Workbook
- D** Using the Rating
- E** Acknowledgements

Appendix

A WE Cities Scoring Methodology *Indicator Selection*

B How this rating differs from other entrepreneurship measures

C How to read the Rating Workbook

D Using the Rating

E Acknowledgements

Building on Dell's years of research on High Potential Women Entrepreneurs (HPWE), IHS identified five important categories of city characteristics (pillars) that influence them.

IHS conducted a literature review to identify important sub-categories within those pillars as well as potential indicators that could be used for measuring those sub-categories.

Dell, Harvard TECH Professor David Ricketts, and IHS convened a Research Symposium bringing together women entrepreneurs, funders, thought leaders, policy makers and researchers to discuss what cities need to attract and support HPWE.

IHS took feedback from DWEN Symposium participants into account when determining which indicators to include in the rating. The Symposium surfaced three new indicators that hadn't previously been proposed: paternity leave, initiatives to collect gendered data, and safety of transportation systems (which relates to the city safety/security overall).

Culture (including mentoring/networking, internal mindsets/expectations and relevant nondiscrimination/ level playing field policies) carried much of the discussion. **Capital** was identified as the biggest constraint in the survey and discussed as critical to business scaling; crowd-funding in particular emerged as a growing source of capital for WE. **Talent** (both in terms of the entrepreneurs' own talent, including education & experience) and getting the right team in place (staff skills) also came out as highly important. All of these were thus given higher weight in the final index scoring.

A higher order categorization of city characteristics emerged from the symposium: factors that influence the **Operating Environment** and factors that influence the **Enabling Environment**. The five pillars were thus re-organized to fit into these two foundational pillars, with related Policy included as a component of each.

Appendix

A WE Cities Scoring Methodology *Data Collection*

B How this rating differs from other entrepreneurship measures

C How to read the Rating Workbook

D Using the Rating

E Acknowledgements

IHS identified indicators and proxy indicators to measure the important categories (Markets, Capital, Technology, Talent and Culture) and individual components of each.

IHS colleagues around the globe supported data collection, as they were able to leverage their familiarity with the city, the local language and available data sources.

Social media analytics and website scraping were used to get city level data for the Talent, Technology and Culture categories. Key sources include: Twitter, LinkedIn, Crunchbase, Github and Kickstarter.

Data was leveraged (where possible) from organizations that participated in the NYC Symposium and the organizations and websites mentioned there. These include:

- the headquarters of the member companies of the Open Compute Project (<http://opencompute.org/>)
- the headquarters of member companies of WEConnect (companies that have committed to instituting vendor programs for WOB that are certified through this organization)
- 2020WOB.com (lists global companies and the percent of women on their boards)
- Chapters of WPO, WeConnect, Women Who Code, Girls in Tech, PWN, etc.

Appendix

A WE Cities Scoring Methodology *Scoring & Ranking Cities*

B How this rating differs from other entrepreneurship measures

C How to read the Rating Workbook

D Using the Rating

E Acknowledgements

IHS weighted indicators based the four criteria described on slide 3:
1) relevance, 2) data quality, 3) uniqueness, and 4) gender-specific focus.

The few instances of missing data were handled by either giving the city the average of all the other cities (this neutralized the impact on the city when the data is standardized) or using a proportion found in a related data source to adjust the data point of interest (e.g., using the ratio of female to male literacy rates in New Delhi to come up with an equivalent ratio of tertiary educational attainment for women in New Delhi).

IHS standardized all data using the method $x - \min / (\max - \min)$ to put all scores on a 0-100 scale so they could be added together.

IHS aggregated the weighted data to get sub-category, category and overall WE Cities ranking scores for all 25 cities.



Appendix

A WE Cities Scoring Methodology

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E Acknowledgements

The WE Cities Score is different in that:

- It is *city* level
- It is a *global* rating (many city level studies rank US cities only).
- It specifically focuses on *women* entrepreneurs versus all entrepreneurs.
- It specifically focuses on women who have the *potential to grow and scale* their business (versus all women owned businesses and versus women's ability to start a business).
- Indicators are chosen to be *actionable* (things that reflect drivers of a city's ability to attract and support HPWE versus outcomes – looking at the current state of whether a city is in fact attracting HPWE).
- Many indicators were uniquely constructed (via *social media and website scraping*) using *2016 sources and data*.



Appendix

A WE Cities Scoring Methodology

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D Using the Rating

E Acknowledgements

There are two Foundational categories: **Operating Environment** and **Enabling Environment**. They are equally weighted at 50% and an overall score for each is provided for each of the 25 cities.

Within the two Foundational categories are five High Level Pillars (with the weights of each indicated in parentheses):

- in Operating Environment: **Capital** (40%), **Talent** (30%), and **Markets** (30%) and
- in Enabling Environment: **Culture** (50%) and **Technology** (50%)

Sub-categories scores within each of the pillars (with the weights of each indicated in parentheses) include:

- MARKETS: **Size** (15%), **Cost** (20%), **Access** (35%), **Policy** (30%)
- TALENT: **Women's Skills & Experience** (60%), **Access to Qualified Personnel** (40%)
- CAPITAL: **Funding Frequency & Value** (30%), **Gender Proportion** (35%), **Women's Capital Base** (35%)
- CULTURE: **Access to Mentors/Role Models** (35%), **Societal Attitudes & Expectations** (30%), **Policy** (35%)
- TECHNOLOGY: **Connectivity** (35%), **Cost** (30%), **Policy** (35%)



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A WE Cities Scoring Methodology

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E Acknowledgements

The WE Cities rating is useful for highlighting relative areas of strengths and weaknesses within a city that can help it improve by leveraging existing strengths and improving areas that are less strong.

Indicators were selected that had an action component (e.g., increasing tertiary education; instituting Vendor Diversity programs, etc.)

- While the WE Cities rating can point to areas that a city could strengthen to increase its overall WE Cities score, further analysis is required to identify the context and develop appropriate improvement strategies.



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A WE Cities Scoring Methodology

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E Acknowledgements

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APPENDIX D

Correlation with Future Ready Economies



Future Ready Economies attract innovative people that help their economies grow and adapt to the ever changing future.

Women are more likely to reinvest their profits in education, their family and their community, contributing to bolstering the human capital pillar of the Future Ready Economies Rating (Brush, 2013).

Future Ready Economy

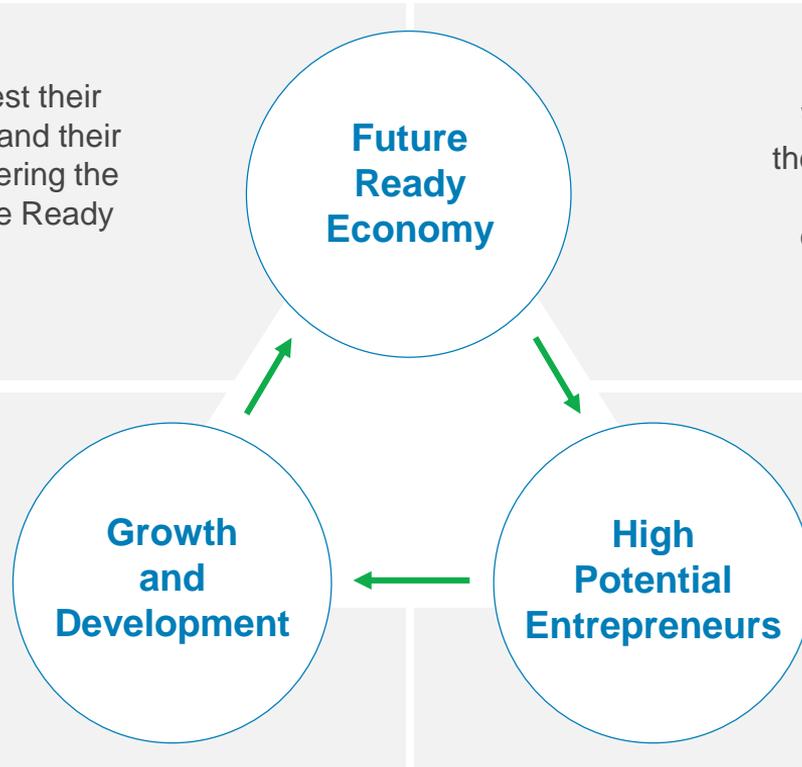
Where the only thing certain about the future is uncertainty – innovators are needed to make the adaptive changes that will help an economy continue to thrive.

High potential women entrepreneurs grow business revenue on average 20% or more per year, creating jobs and economic growth (NWBC, 2014).

Growth and Development

High Potential Entrepreneurs

Entrepreneurs (both men and women) are innovators. Innovation is what drives new growth and development.



Recap | The Future Ready Economies Index



FUTURE READY INDEX

**Human Capital
Pillar**
(weighting: 40%)

**Commerce
Pillar**
(weighting: 30%)

**Infrastructure
Pillar**
(weighting: 30%)

DELL GLOBAL FRE RANKING

The 50 cities were chosen based on average growth over the past 5 years and size of the economy.

The Global Index combined the US and International rankings.

A global score was calculated by using the indicators that were the same or very close on both the US and International ranking; for indicators that were not compatible, a new indicator was found to reconcile the US and International cities.

See full list at:

<http://www.futurereadyeconomies.dell.com/the-top-50-ranking-future-ready-cities-around-the-globe/>

Cities in both WE Cities and FRE

San Jose	Taipei
San Francisco	Munich
Singapore	Tokyo
London	Sao Paulo
New York	Delhi
Beijing	Milan
Sydney	Jakarta
Austin	Istanbul
Washington DC	Mexico City
Hong Kong	Boston
Toronto	Portland
Stockholm	Atlanta
Seoul-Incheon	Houston
Shanghai	Los Angeles
Seattle	Minneapolis
Paris	Pittsburgh

With the additional cities ability to attract and support high potential women entrepreneurs is **87% correlated with its Future Ready Score** (compared to 86% last year).

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