

Athens: A city of Opportunity

based on the worldwide study of PwC “Cities of Opportunity 6”

July 2015

Cities of opportunity

Introduction

1

PwC's “Cities of Opportunity”

- PwC's report examines and identifies the factors that contribute to “**a successful city**” and “**a resilient urban community**”.
- It examines and evaluates selected cities on the basis of **10 indicators**, organised into **3 families**.

Family

1



Tools for a changing world

1. Intellectual capital and innovation
2. Technology readiness
3. City Gateway

Family

2



Quality of life

4. Health, safety and security
5. Sustainability and the natural environment
6. Demographics and livability
7. Transport and infrastructure

Family

3



Economics

8. Economic clout
9. Ease of doing business
10. Cost

PwC's “Cities of Opportunity”

Methodology:

- ✓ Historically, the study evaluates **30 cities** selected each year based on specific criteria.
- ✓ Cities may interchange, always maintaining number 30. There is though, a number of cities that repeatedly participate each year.
- ✓ Each of the **10 indicators** of the study is comprised of 3 – 9 variables (**59 variables** in total)
- ✓ Each city is evaluated on every criterion and based on the results, they are ranked between 1 and 30, where 30 represents the highest score and 1 the lowest.
- ✓ Each indicator's score is the sum of its rankings across the corresponding variables.
- ✓ Recognised and reliable secondary sources of information are used for the evaluation of the cities, including:
 - Surveys and data from international organisations (e.g. World Bank, IMF, etc.)
 - Data from National and European statistical services
 - Surveys and data from research companies (e.g. Oxford economics, Mercer)
- ✓ **In this sample Athens is added as the 31st city.**
- ✓ **For some indicators, the data used reflect the greater area of Attica or the country as a whole.**

The ten (10) indicators of the study



1. Intellectual capital and innovation: Libraries with public access, Math/Science skills attainment, Literacy and enrollment, Percent of population with higher education, World university rankings, Innovation Cities Index, Entrepreneurial environment

2. Technology readiness: Internet access in schools, Broadband quality, Digital economy score, Software development and multi-media design

3. City Gateway: Hotel rooms, International tourists, Number of International Association Meetings, Incoming/ Outgoing passenger flows, Airport to CBD access, Top 100 airports, On time flight departures



8. Economic clout: Number of Global 500 headquarters, Financial and business services employment, Attracting FDI, Productivity, Rate of real GDP growth

9. Ease of doing business: Ease of starting a business, Resolving insolvency, Employee regulations, Ease of entry: Number of countries with visa waiver, Foreign embassies or consulates, Level of shareholder protection, Operational risk climate, Workforce management risk

10. Cost: Total corporate tax rate, Cost of business occupancy, Cost of Living, iPhone index, Purchasing Power



4. Health, safety, and security: Hospitals and health employment, Health system performance, End of life care, Crime, Political environment

6. Demographics and livability: Cultural vibrancy, Quality of living, Working age population, Traffic congestion, Ease of commute, Relocation attractiveness

5. Sustainability and the natural environment: Natural disaster risk, Thermal comfort, Recycled waste, Air pollution, Public park space

7. Transportation and infrastructure: Public transport systems, Mass transit coverage, Cost of public transport, Licensed taxis, Major Construction Activity, Housing

Cities of Opportunity

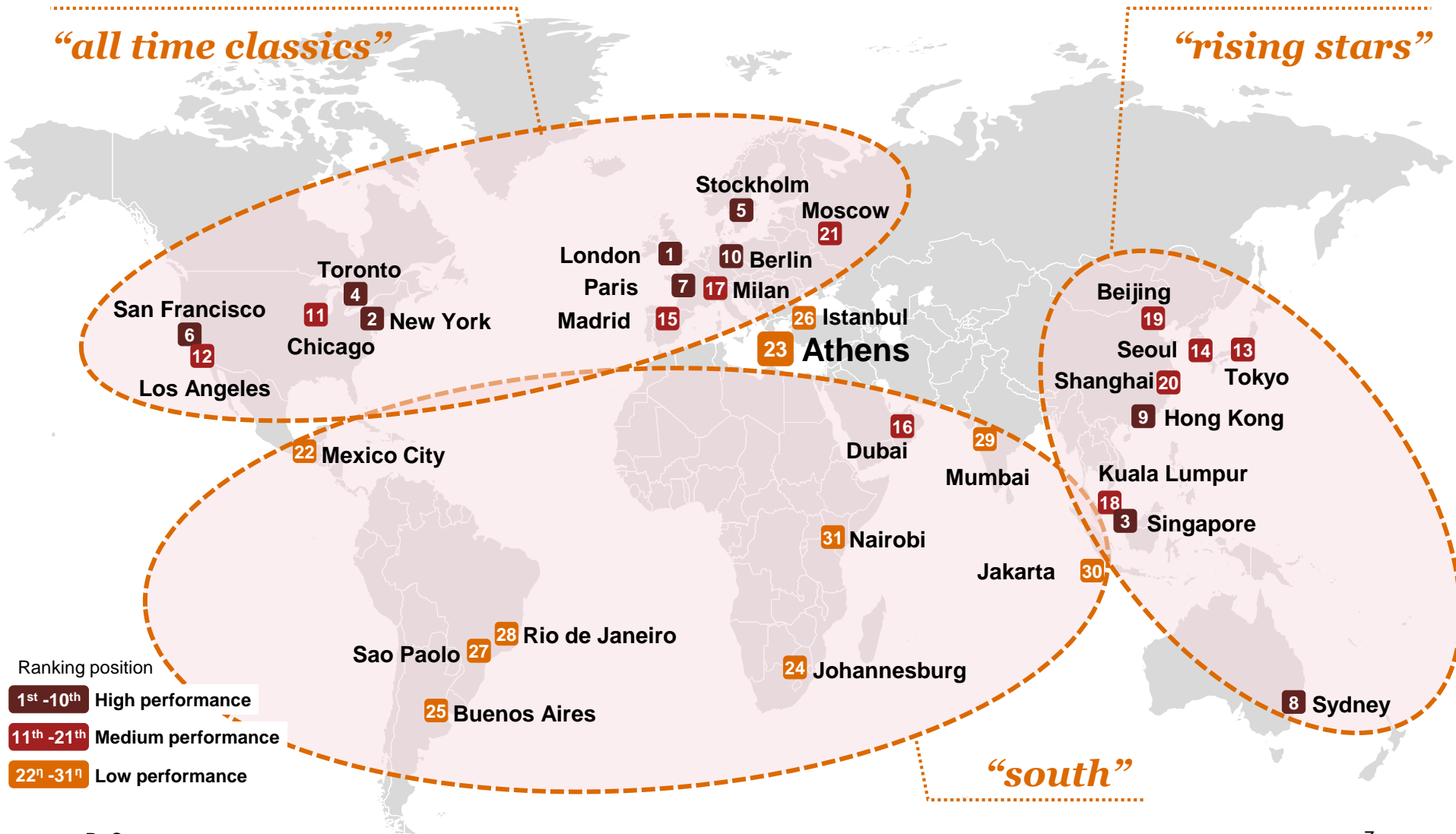
Athens: comparative assessment

2

From a high-level view Athens appears to be able to improve its performance, as long as she finds her direction

“all time classics”

“rising stars”



The comparison reveals some positive points, but also several areas for improvement

1

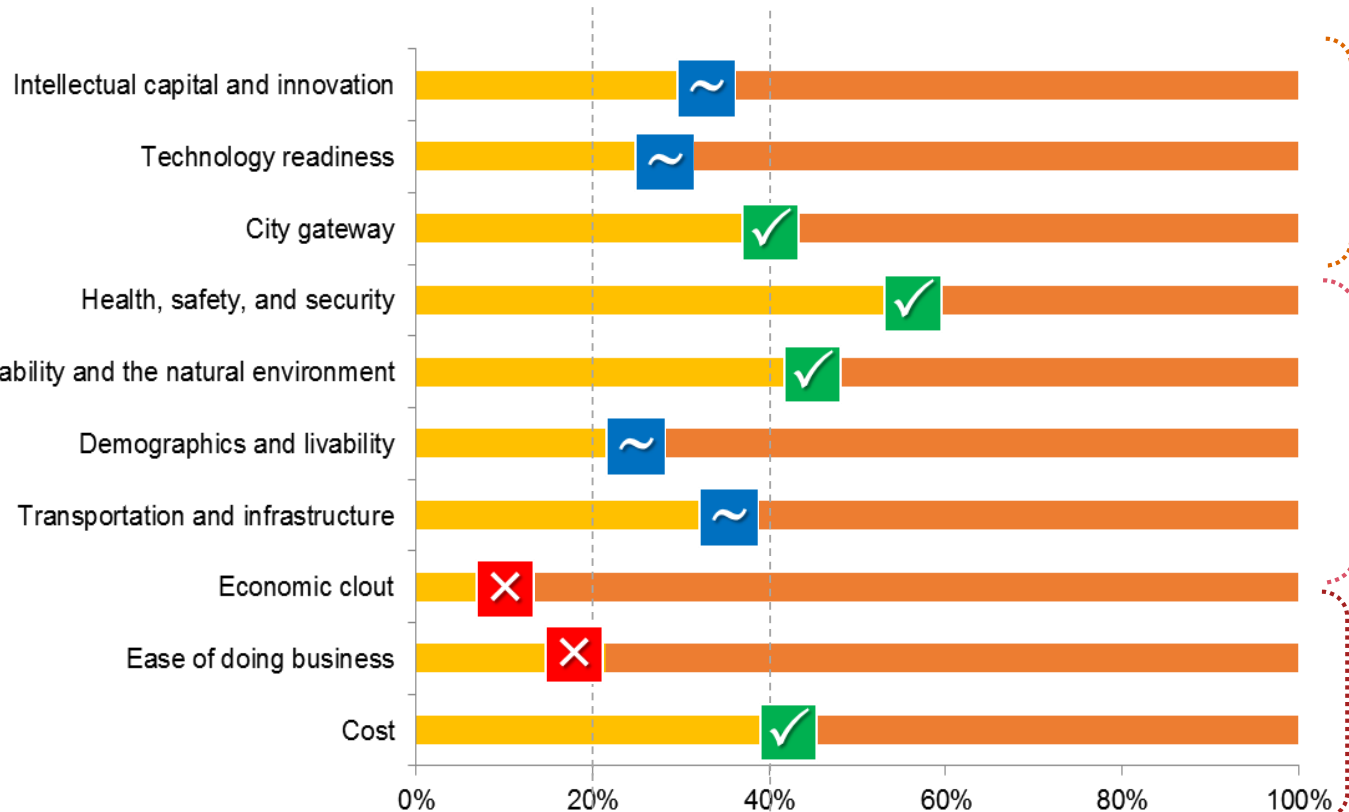
Tools for a changing world

2

Quality of life

3

Economics



Relative strengths



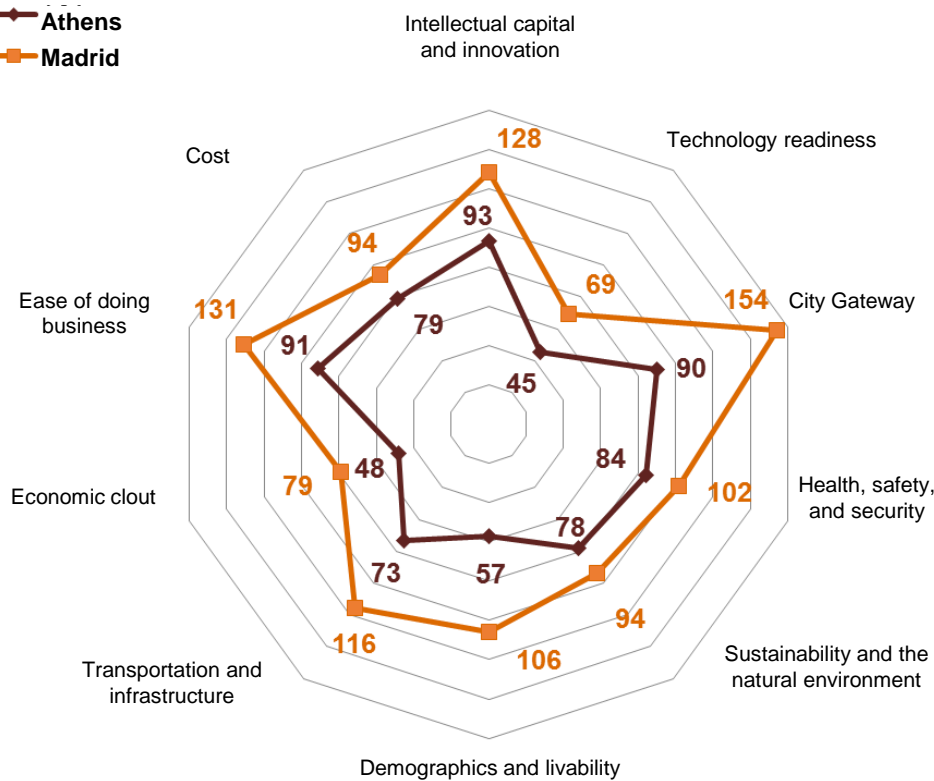
Relative medium performance



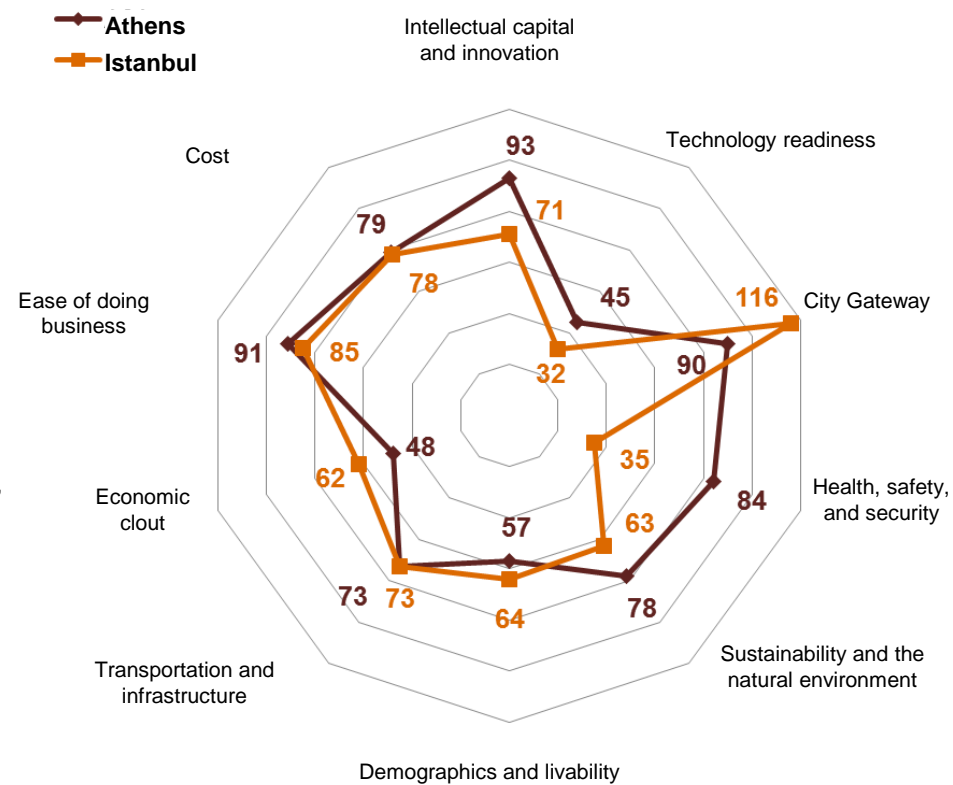
Areas for improvement

Athens compared with 2 similar South European cities...

...is worse than Madrid



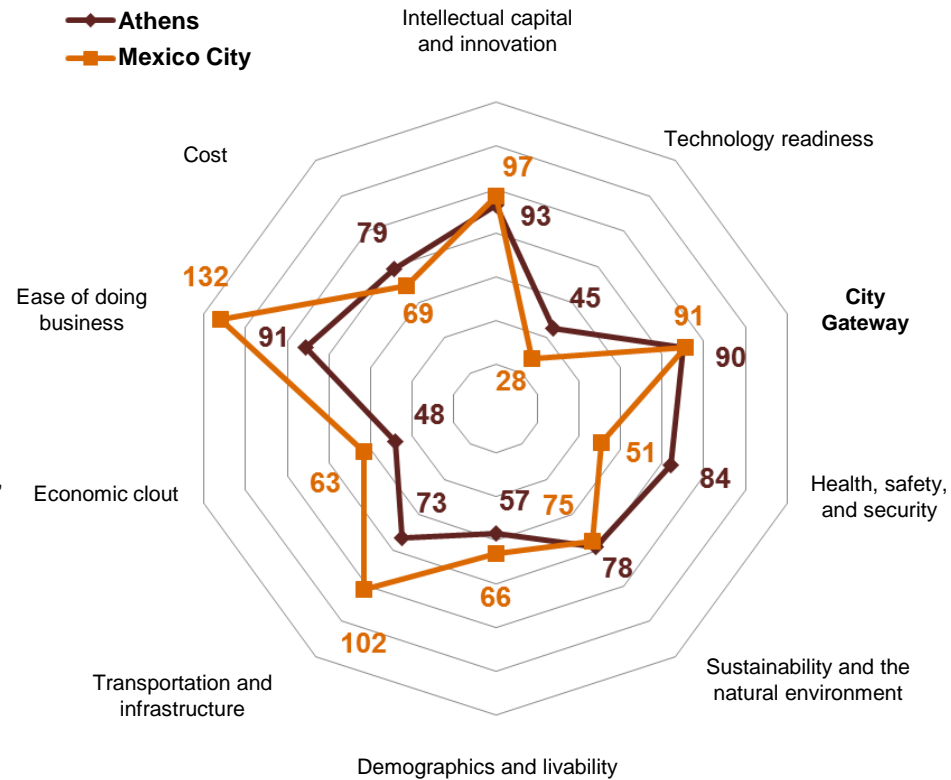
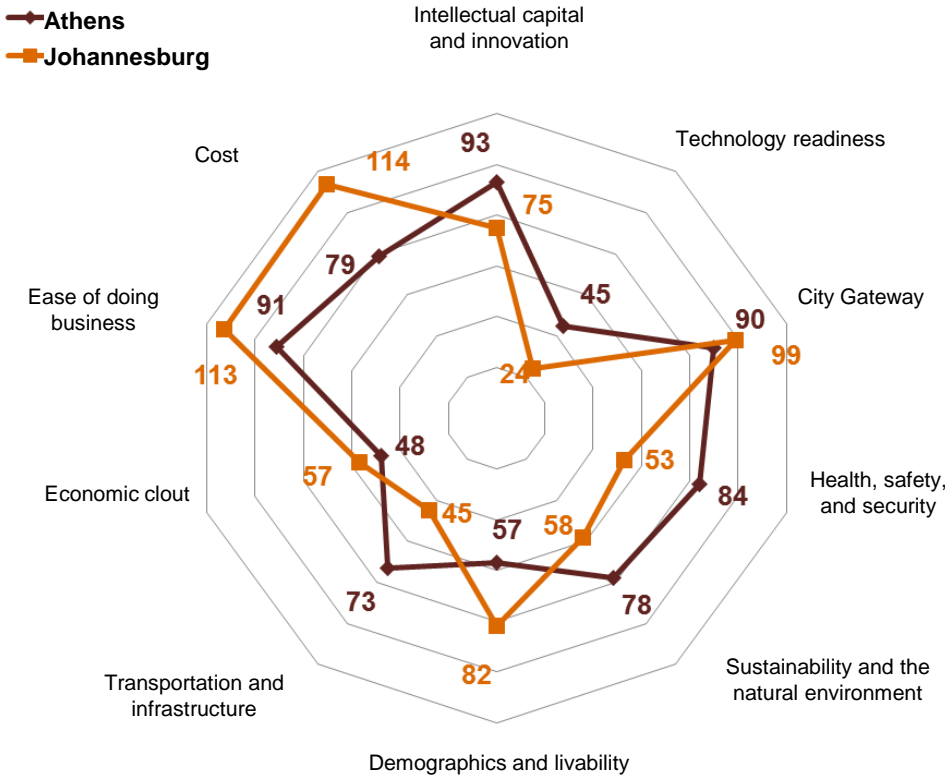
...is a little better than Istanbul



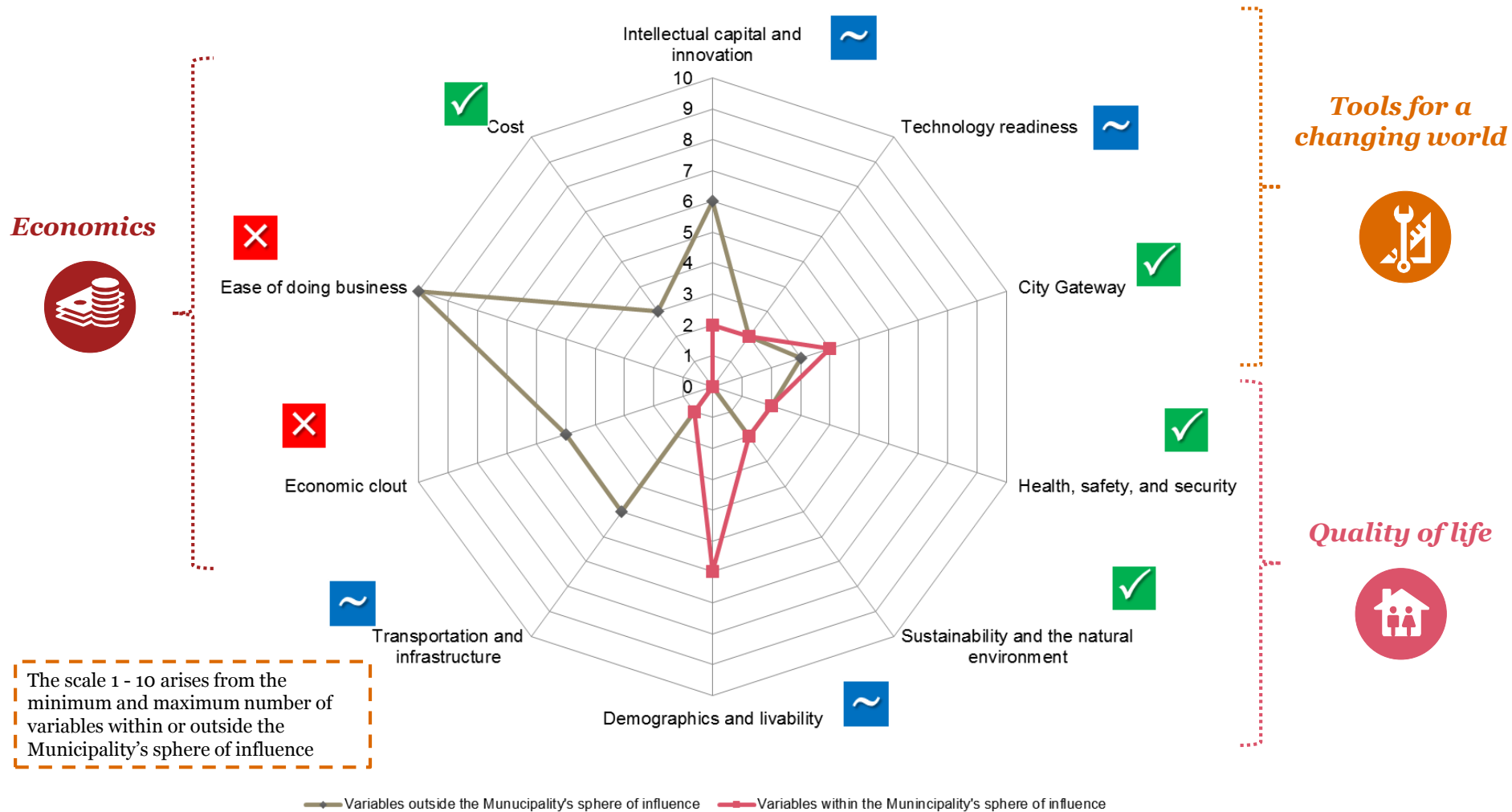
Athens compared to 2 cities with similar performance...

... Johannesburg

... Mexico City



Athens can only directly influence some of the variables to improve her competitiveness



Findings

- Positive points: 1. Cost, 2. Health, safety, and security 3. Sustainability and the natural environment.
- Areas for improvement: 1. Economic clout, 2. Ease of doing business, 3. Demographics and livability.
- In total, Athens is left behind when compared to the European/ western cities but also to the rising stars of the East, **without performing particularly well** in any of the given indicators.
- Athens **can change its performance level** (from low to medium) with targeted interventions.
- Athens can only directly influence 1/3 of the variables that impact her competitiveness.
- There is intense competition coming from the cities of Southern Europe (Madrid, Istanbul), which requires monitoring.

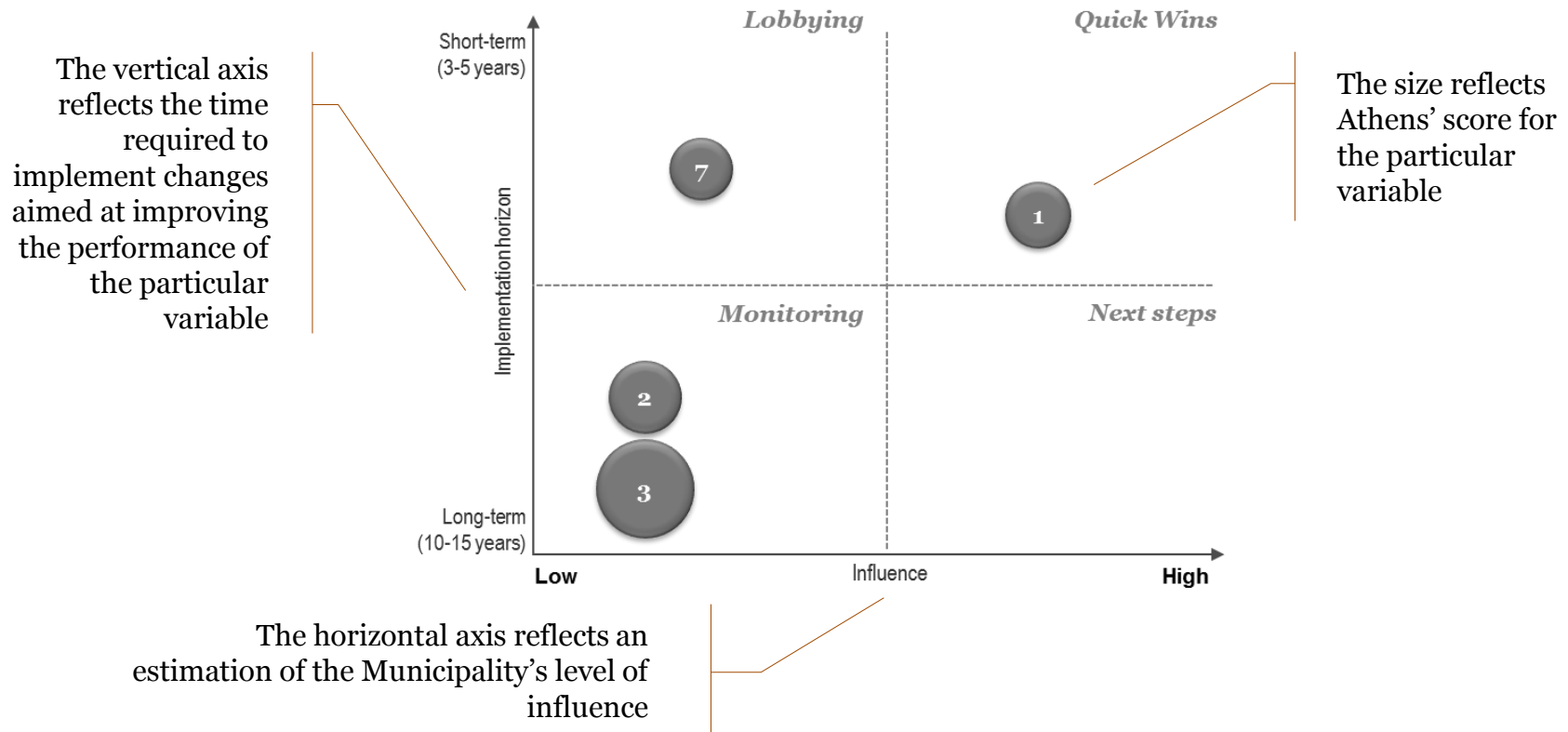
Athens should set out a long-term strategic goal, to provide as a reference point for her development.

Cities of opportunity

Athens: Detailed analysis

3

Analysis and evaluation methodology



«**Quick wins**»: High priority actions, mainly because of their short term application

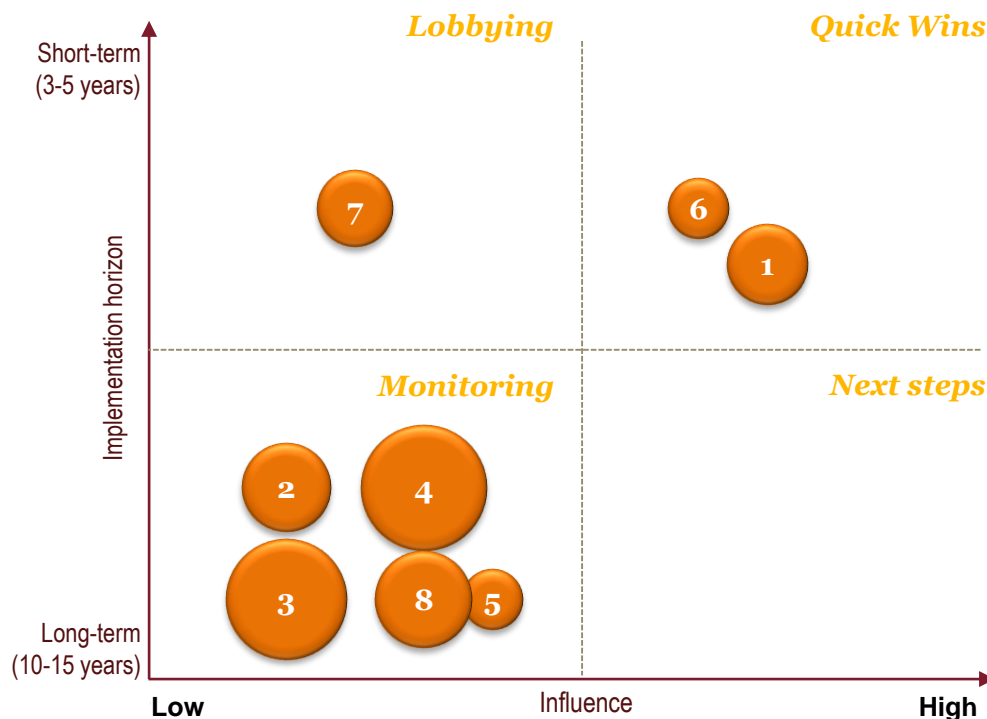
«**Next steps**»: Actions that require long-term planning, programming, and technical justification

«**Lobbying**»: Actions outside the powers of the Municipality, where consultation with the relevant bodies is required

«**Monitoring**»: Area outside the Municipality's sphere, but should be monitored



22nd in intellectual capital and innovation



- 1** Libraries with public access
- 2** Math/Science skills attainment
- 3** Literacy and enrollment
- 4** Percent of population with higher education
- 5** World university rankings
- 6** Innovation Cities Index
- 7** Intellectual property protection
- 8** Entrepreneurial environment

<i>Champions</i>		
Quick Wins	1. Libraries with public access	Stockholm
	6. Innovation Cities Index	New York

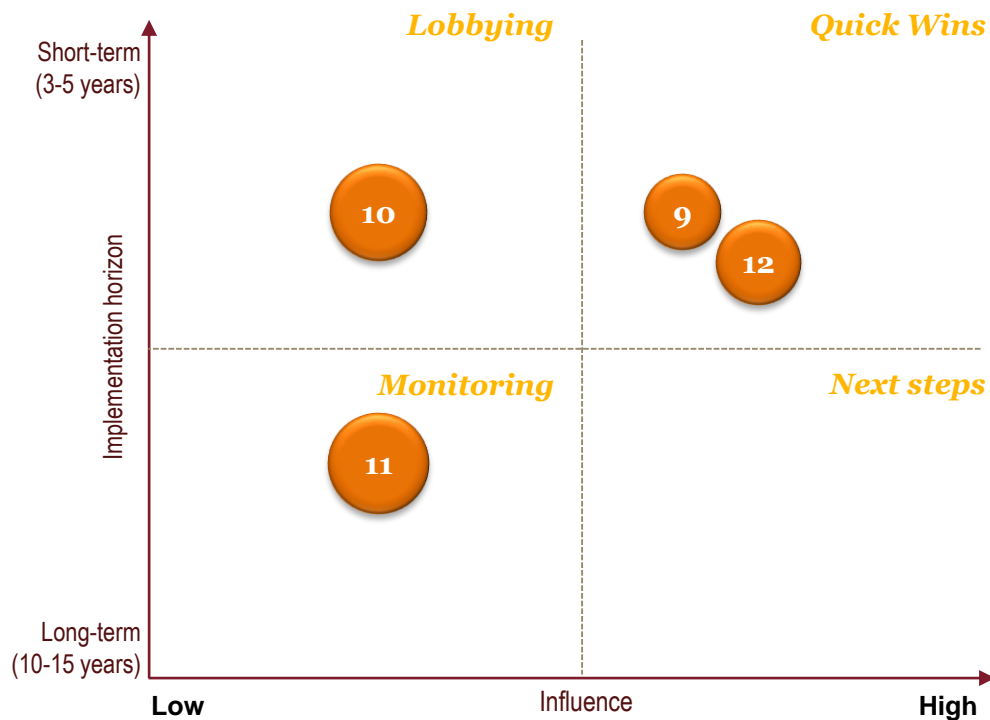


Intellectual capital and innovation

Variable	Definition
1. Libraries with public access	Number of libraries within each city that are open to the public divided by the total population and then multiplied by 100,000.
2. Math/ Science skills attainment	Top performers' combined mean scores on the math and science components of the Program for International Student Assessment (PISA) an Organisation for Economic Co-operation and Development (OECD) assessment of 15 year olds' academic preparedness. Top performers are defined as those students who achieved in the top two proficiency levels (Level 5 and Level 6) on the math and science portions of the test. Comparable examinations are used wherever possible to place cities not included in the OECD assessment.
3. Literacy and enrolment	Measurement of a country's ability to generate, adopt and diffuse knowledge. The World Bank's Knowledge Index is derived by averaging a country's normalized performance scores on variables in three categories—education and human resources, the innovation system, and information and communications technology. The variables that compose education and human resources are adult literacy rate, secondary education enrollment and tertiary education enrollment.
4. Percent of population with higher education	Number of people who have completed at least a university-level education divided by the total population. A university-level education is set equivalent to a Bachelor's degree or higher from a US undergraduate institution.
5. World university rankings	The Times Higher Education World University Rankings 2013-2014 powered by Thomson Reuters are the only global university performance tables to judge world class universities across all of their core missions - teaching, research, knowledge transfer and international outlook. The top universities rankings employ 13 carefully calibrated performance indicators to provide the most comprehensive and balanced comparisons available, which are trusted by students, academics, university leaders, industry and governments.
6. Innovation Cities Index	The 2thinknow Innovation Cities™ index is comprised of 331 cities selected from 1,540 cities based on basic factors of health, wealth, population, geography. The selected cities had data extracted from a city benchmarking data program on 162 indicators. Each of the benchmarking data were scored by analysts using best available qualitative analysis and quantitative statistics. (Where data was unavailable, national or state estimates were used). Data was then trend balanced against 21 global trends. The final index had a zeitgeist (analyst confidence) factor added and the score reduced to a three-factor score for Cultural Assets, Human Infrastructure and Networked Markets. For city Classification, these scores were competitively graded into 5 bands (Nexus, Hub, Node, Influencer, Upstart). The top 33% of Nexus and Hub (and selected Node cities of future interest) final graded scores were ranked by analysts based on trends over 2-5 years. A node ranking is considered globally competitive.
7. Intellectual property protection	Leading business executives' responses to the question in the World Economic Forum's Executive Opinion Survey 2012 that asks, "How would you rate intellectual property protection, including anti-counterfeiting measures, in your country? (1=very weak; 7=very strong)." The survey covers a random sample of large and small companies in the agricultural, manufacturing, non-manufacturing, and service sectors.
8. Entrepreneurial environment	Measurement of the entrepreneurial attitudes, entrepreneurial activity and entrepreneurial aspirations in a country. The Global Entrepreneurship Index (GEINDEX) integrates 31 variables, including quantitative and qualitative measures and individual-level data.



23rd in technology readiness



- 9** Internet access in schools
- 10** Broadband quality
- 11** Digital economy score
- 12** Software development and multi-media design

<i>Champions</i>		
Quick Wins	9. Internet access in schools	Singapore
	12. Software development and multi-media design	London

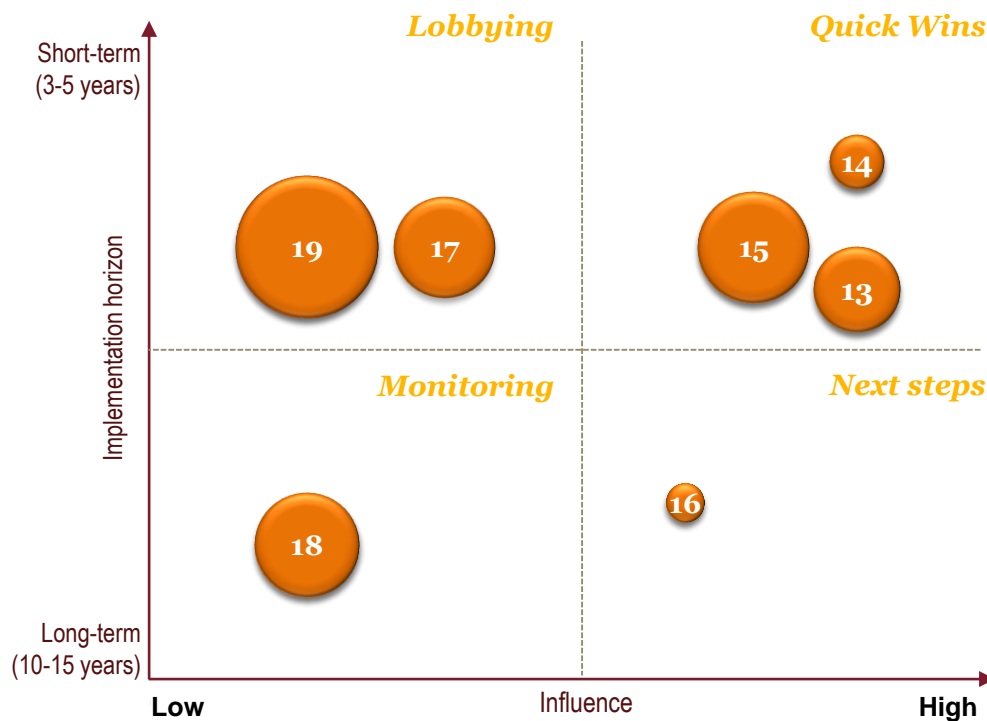


Technology readiness

Variable	Definition
9. Internet access in schools	Leading business executives' responses to the question in the World Economic Forum's Executive Opinion Survey 2012 that asks, "How would you rate the level of access to the Internet in schools in your country? (1=very limited; 7=extensive)." The survey covers a random sample of large and small companies in the agriculture, manufacturing, non-manufacturing, and service sectors.
10. Broadband quality score	Based on millions of recent test results from Pingtest.net, this global broadband index from Ookla compares and ranks consumer broadband connection quality around the globe. Quality is reported in R-Factor, an industry-standard measurement for connection quality — crucial for applications that require a steady connection such as VOIP and online gaming. The value is the mean R-Factor over the past 30 days. Only tests taken within 300 miles of the server are eligible for inclusion in the index.
11. Digital economy score	Economist Intelligence Unit "Digital Economy Rankings 2010 - Beyond E-readiness" report provides an assessment of the quality of a country's information and communications technology (ICT) infrastructure and the ability of its consumers, businesses and governments to use ICT to their benefit. When a country uses ICT to conduct more of its activities, the economy can become more transparent and efficient.
12. Software development and multi-media design	Combination of scores for each city in fDi magazine's Best Cities for Software Development, Best Cities for Multi-Media Design Centres, and The World Bank KEI Index. Both fDi indices weight a city's performance 70% based on the quality of the location and 30% based on the cost of the location. The software design index is based on an assessment of 120 quality competitiveness indicators. These indicators include availability and track record in ICT, availability of specialized-skills professionals such as scientists and engineers, access to venture capital, R&D capabilities, software experts, quality of ICT infrastructure and specialization in software development. The multimedia design centre rankings are based on an assessment of 120 quality competitiveness indicators, including the size of the location's leisure and entertainment sector, its specialization and track record, information technology infrastructure, quality of life and skills availability. The World Bank KEI Index is noted as the simple average of normalised scores of three key variables: telephone, computer and internet penetrations (per 1000 people).



25th as a City Gateway



- 13** Hotel rooms
- 14** International tourists
- 15** Number of International Association Meetings
- 16** Incoming/ Outgoing passenger flows
- 17** Airport to CBD access
- 18** Top 100 airports
- 19** On time flight departures

<i>Champions</i>		
Quick Wins	13. Hotel rooms	Shanghai
	14. International tourists	Hong Kong
	15. Number of International Association Meetings	Paris
Next Steps	16. Incoming/ Outgoing passenger flows	London

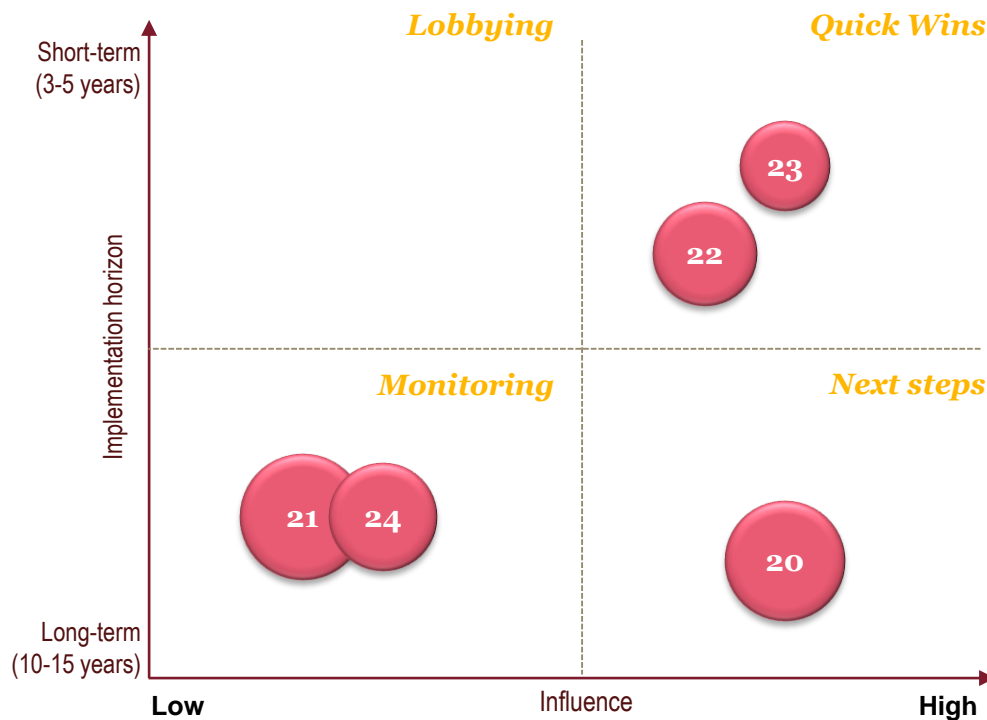


City Gateway

Variable	Definition
13. Hotel rooms	Count of all hotel rooms within each city.
14. International tourists	ΕτήAnnual international tourist arrivals for 100 cities collected by Euromonitor International. Euromonitor's figures include travelers who pass through a city, as well as actual visitors to the city. Από to Euromonitor International.
15. Number of International Association Meetings	Number of international association meetings per city per year which take place on a regular basis and rotate between a minimum of three countries. Figures provided by the International Congress and Convention Association (ICCA).
16. Incoming / Outgoing passenger flows	Total number of incoming and outgoing passengers, including originating, terminating, transfer and transit passengers in each of the major airports servicing a city. Transfer and transit passengers are counted twice. Transit passengers are defined as air travelers coming from different ports of departure who stay at the airport for brief periods, usually one hour, with the intention of proceeding to their first port of destination (includes sea, air and other transport hubs).
17. Airport to CBD access	A measure of the ease of using public transit to travel between a city's central business district and the international terminal of its busiest airport in terms of international passenger traffic. Cities are separated into categories according to whether a direct rail link exists, if so the number of transfers required, and if not whether there is a public express bus route to the airport. Cities with direct rail links are preferred to those with express bus services. Cities with rail links with the fewest transfers are ranked higher than those with more. Within categories, cities are ranked against one another according to the cost of a single one-way, adult weekday trip and the length of the trip, with each factor weighted equally.
18. Top 100 airports	Each city receives a score based on the ranking of that city's top airport in the 'World's Top 100 Airports' ranking, compiled by Skytrax.
19. On time flight departures	Average percentage of flights which departed on time from each city over three months (May-July 2013).



17th in health, safety, and security



20 Hospitals and health employment

21 Health system performance

22 End of life care

23 Crime

24 Political environment

<i>Champions</i>		
Quick Wins	22. End of life care	London
	23. Crime	Hong Kong
Next Steps	20. Hospitals and health employment	Chicago

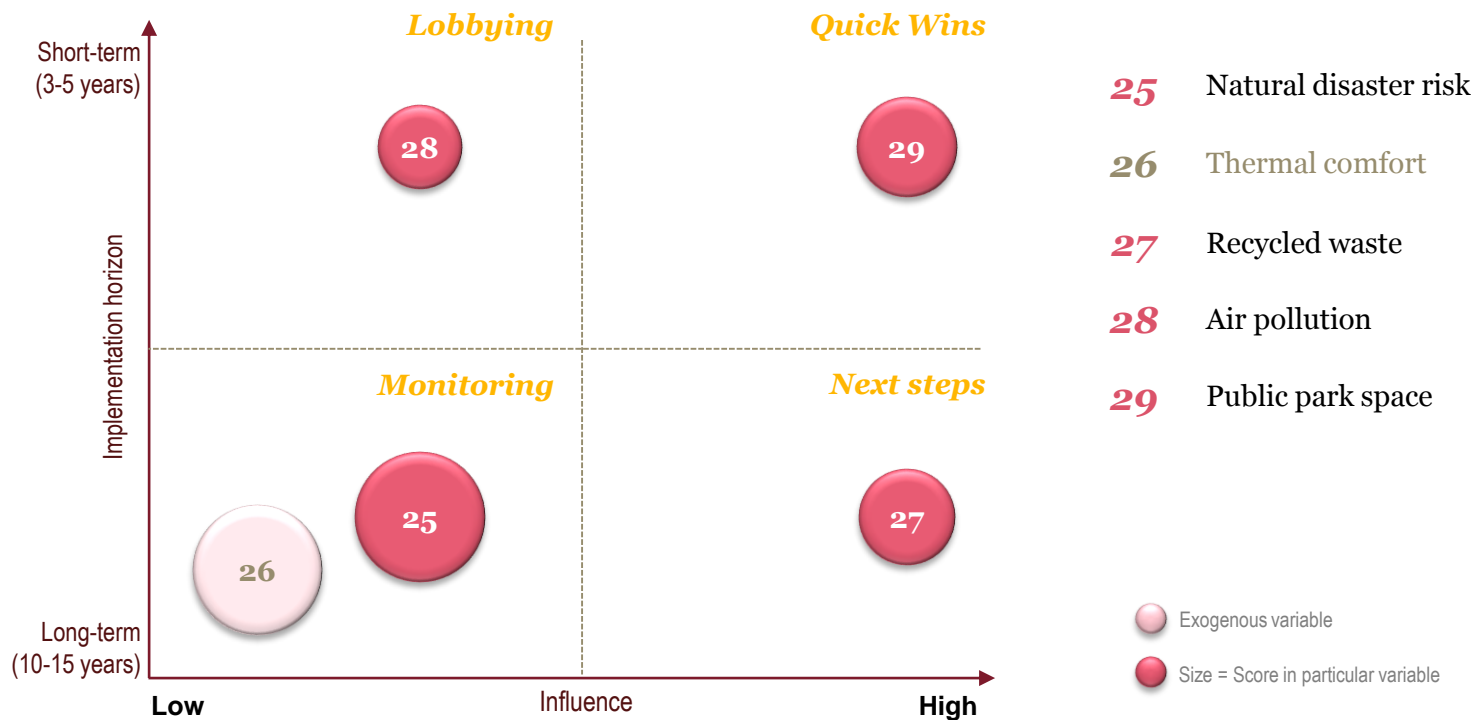


Health, safety, and security

Variable	Definition
20. Hospitals and health employment	Combination of scores for: the ratio of all hospitals within each city accessible to international visitors to every 100,000 members of the total population; and the ratio of employment in the health sector per 100,000 of the population as provided by Oxford Economics.
21. Health system performance	Measurement of a country's health system performance made by comparing healthy life expectancy with healthcare expenditures per capita in that country, adjusted for average years of education (years of education is strongly associated with the health of populations in both developed and developing countries). PwC Global Healthcare adapted methodology from the 2001 report "Comparative efficiency of national health systems: cross-national econometric analysis".
22. End of life care	Ranking of countries according to their provision of end-of-life care. The Quality of Death Index by EIU scores countries across four categories: Basic End-of-Life Healthcare Environment; Availability of End-of-Life Care; Cost of End-of-Life Care; and Quality of End-of-Life Care. These indicator categories are composed of 27 variables, including quantitative, qualitative and "status" (whether or not something is the case) data. The indicator data are aggregated, normalized, and weighted to create the total index score.
23. Crime	Weighted combination of Mercer Quality of Living report Crime score (50%) Intentional homicide rate per 100,000 of the city population (30%) and the Numbeo Crime Index which is an estimation of the overall crime level in each city based on how safe citizen's feel (20%).
24. Political environment	Measure of a nation's relationship with foreign countries, internal stability, law enforcement, limitations on personal freedom and media censorship. Data is from the 2013 Mercer Quality of Living Reports.



15th in sustainability and the natural environment



Champions		
Quick Wins	29. Public park space	Stockholm
Next steps	27. Recycled waste	Berlin

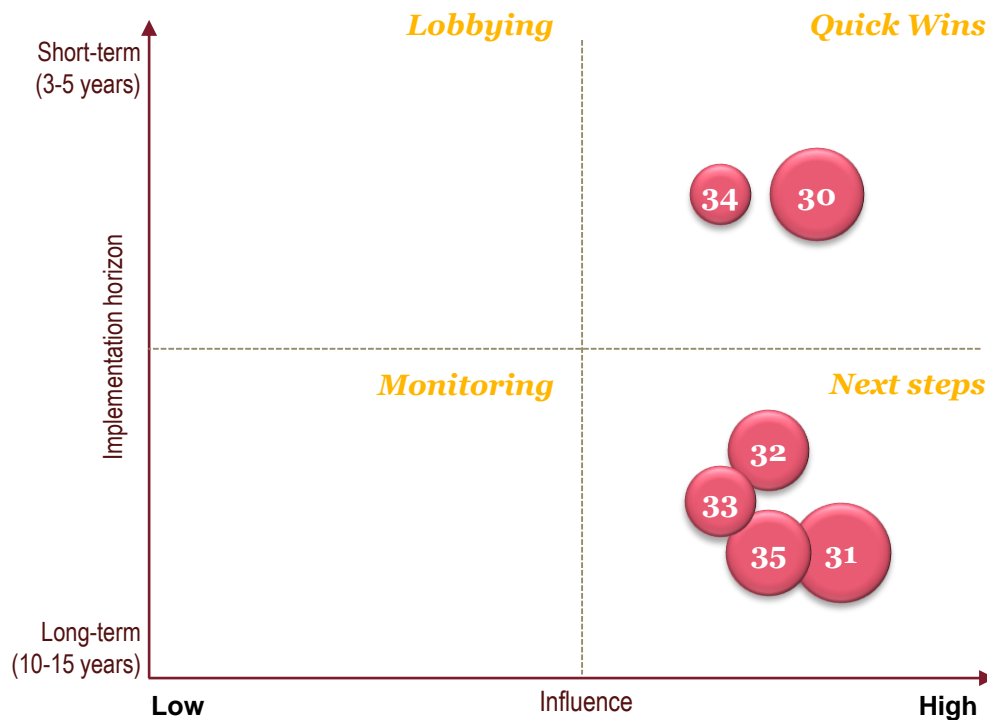


Sustainability and the natural environment

Variable	Definition
25. Natural disaster risk	Risk of natural disasters occurring in or near a city. Counted hazards include hurricanes, droughts, earthquakes, floods, landslides and volcanic eruptions.
26. Thermal comfort	A thermal comfort score was created for each city by calculating the average deviation from optimal room temperature (72 degrees Fahrenheit). January, April, July and October heat indices were calculated for each city using an online tool that integrates average high temperature and corresponding relative evening humidity during each month. A final thermal comfort score was derived by first taking the difference between a city's heat index for each month and optimal room temperature and then averaging the absolute values of these differences.
27. Recycled waste	Percentage of municipal solid waste diverted from landfill.
28. Air pollution	Combination of measures of PM10 outdoor air pollution levels from the World Health Organisation (WHO) and the Numbeo Pollution Index of overall pollution in each city. The World Health Organization's Public Health and Environment database provides annual mean concentrations of particulate matter 10 micrometers (PM10) in diameters or less which reflect the degree to which urban populations are exposed to this fine matter. The Numbeo Pollution Index is generated via survey based data. Numbeo attribute the biggest weight to air pollution, then to water pollution/accessibility, as the two main pollution factors. A small weight is given to other pollution types.
29. Public park space	Proportion of a city's land area designated as public recreational and green spaces to the total land area. Excludes undeveloped rugged terrain or wilderness that is either not easily accessible or not conducive to use as public open space.



29th in demographics and livability



- 30** Cultural vibrancy
- 31** Quality of living
- 32** Working age population
- 33** Traffic congestion
- 34** Ease of commute
- 35** Relocation attractiveness

Size = Score in particular variable

<i>Champions</i>		
<i>Quick Wins</i>	30. Cultural vibrancy	New York
	34. Ease of commute	Stockholm
<i>Next Steps</i>	31. Quality of living	Toronto
	32. Working age population	Beijing
	33. Traffic congestion	Singapore
	35. Relocation attractiveness	London

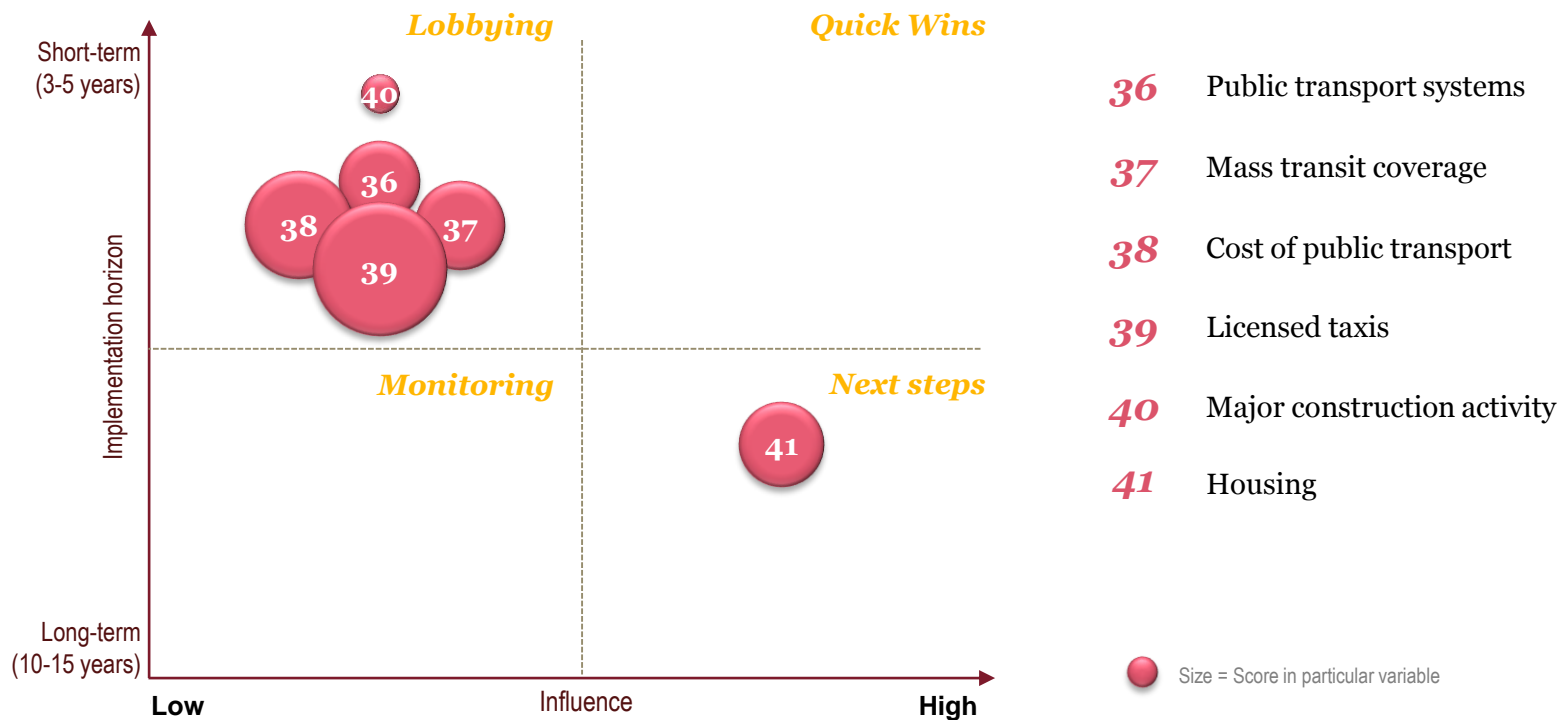


Demographics and livability

Variable	Definition
30. Cultural vibrancy	Weighted combination of city rankings based on: the quality and variety of restaurants, theatrical and musical performances, and cinemas within each city; which cities recently have defined the “zeitgeist” or the spirit of the times; and the number of museums with online presence within each city. The “zeitgeist” rankings take into account cultural, social and economic considerations.
31. Quality of living	Score based on more than 30 factors across five categories: socio-political stability, healthcare, culture and natural environment, education and infrastructure. Each city receives a rating of either acceptable, tolerable, uncomfortable, undesirable or intolerable for each variable. For qualitative indicators, ratings are awarded based on the Economic Intelligence Unit analysts’ and incity contributors’ judgments. For quantitative indicators, ratings are calculated based on cities’ relative performances on a number of external data points. Data produced by The Economist Intelligence Unit Liveability ranking.
32. Working age population	Proportion of a city’s population aged 15-64 to the total population of the city.
33. Traffic congestion	Measure of traffic congestion and congestion policies for each city scored on the level of congestion as well as the modernity, reliability and efficiency of public transport. Assessment based on Mercer Quality of Living reports 2013 and IBM Traffic Pain Index.
34. Ease of commute	PwC employees in each of the 30 offices where asked "On a scale from 1 to 10, where 1 is difficult and 10 is easy, please rate your commute to work?". Average score provided by PwC Employee Survey.
35. Relocation attractiveness	PwC employees in each of the 30 offices where asked "Which of the other 29 cities in Cities of Opportunity, please rank the top 3 cities that you would like to work in most?" Data provided by PwC Employee Survey.



28th in transportation and infrastructure



		Champions
Next Steps	41. Housing	Singapore

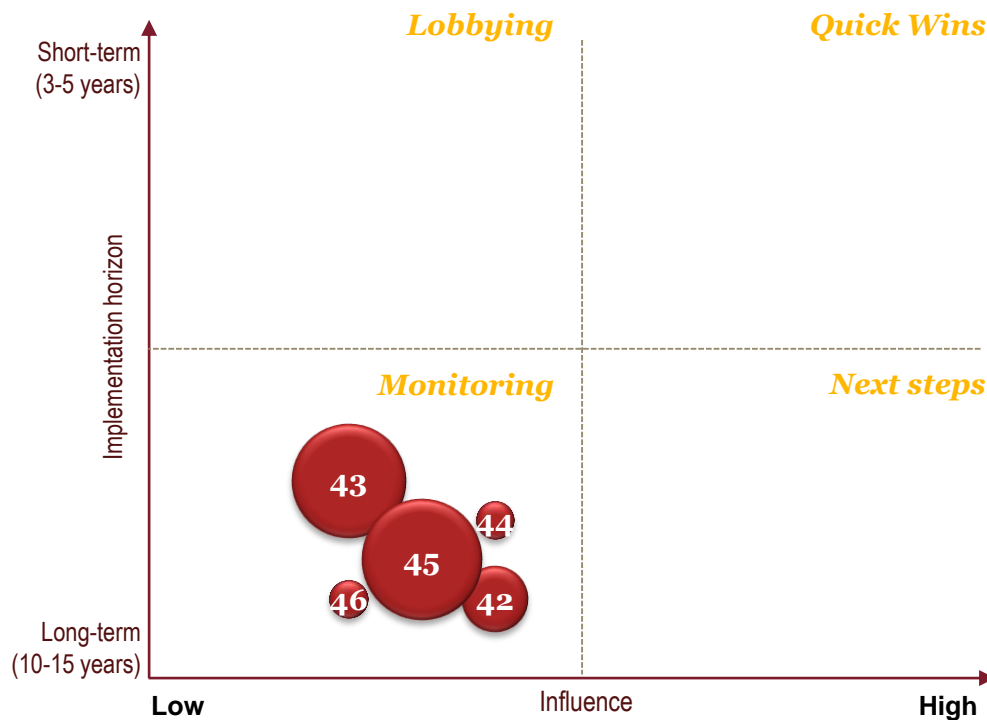


Transportation and infrastructure

Variable	Definition
36. Public transport systems	Reflects the efficiency, reliability and safety of public transport networks as defined and rated by the Mercer Quality of Living reports 2013. Cities also received additional points for each multi-modal transport system available to the public including: subway, bus/bus rapid transit, taxi, light rail, tram/trolley/streetcar, commuter rail and bike share systems. Each city received a tenth of a point for the modes of transport available within the city to differentiate between the 1-10 scores awarded by Mercer. Cities that had a fully operational Bus Rapid Transit (BRT) system received 0.05 points (in addition to the tenth of a point for a public bus system). Ferry systems were excluded to not penalize land-locked cities for their absence.
37. Mass transit coverage	Ratio of kilometers of mass transit track to every 100 square kilometers of the developed and developable portions of a city's land area. A city's developable land area is derived by subtracting green space and governmentally protected natural areas from total land area.
38. Cost of public transport	Cost of the longest mass transit rail trip within a city's boundaries to the CBD. The cost of a bus trip is used in the cities where there are no rail systems.
39. Licensed taxis	Number of officially licensed taxis in each city divided by the total population and then multiplied by 1,000.
40. Major construction activity	The count of 'planned' and 'under construction' buildings in the Emporis database for each city. This includes structures such as high-rise, skyscrapers, low-rise, halls and stadia.
41. Housing	Measure of availability, diversity, cost and quality of housing, household appliances and furniture, as well as household maintenance and repair. This measure is based on the Mercer Quality of Living report 2013.



30th in economic clout



- 42** Number of Global 500 headquarters
- 43** Financial and business services employment
- 44** Attracting FDI
- 45** Productivity
- 46** Rate of real GDP growth

● Size = Score in particular variable

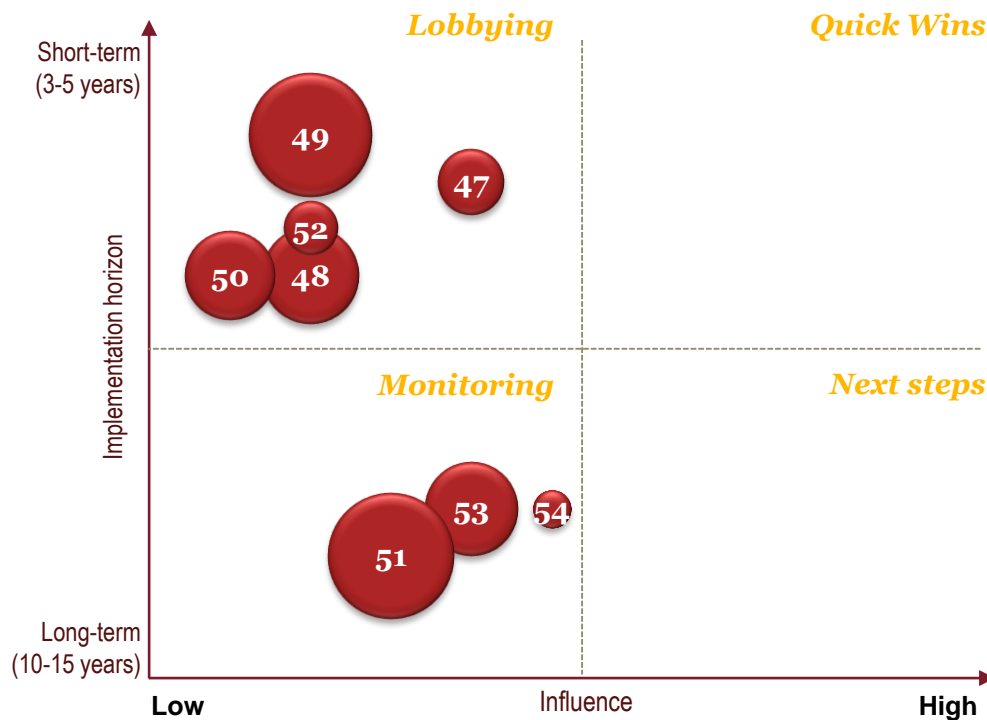


Economic clout

Variable	Definition
42. Number of Global 500 headquarters	Number of Global 500 headquarters located in each city.
43. Financial and business services employment	The number of jobs in financial and business services activity as a share of total employment in the city. Financial services includes 'banking and finance', 'insurance and pension funding', and 'activities auxiliary to financial intermediation'. Business services includes a mix of activities across the following sub-sectors 'real estate and renting activities', IT and computer related, 'R&D', 'architectural, engineering and other technical activities', 'legal, accounting, bookkeeping and auditing activities, tax, and consultancy', 'Advertising' and 'Professional scientific and technical services and business services where not elsewhere classified'. Data sourced by Oxford Economics.
44. Attracting FDI	Combined variable ranking the number of greenfield (new job-creating) projects, plus the total USD value of greenfield capital investment activities in a city that are funded by foreign direct investment (FDI). Data cover the period from January 2003 through December 2012 provided by fDi Intelligence.
45. Productivity	Productivity is calculated by dividing the gross domestic product (GDP) in 2013 US dollars by employment in the city. Data provided by Oxford Economics.
46. Rate of real GDP growth	2012-2014 gross domestic product (GDP) percentage growth rate in real terms expressed in 2013 US dollars. Data provided by Oxford economics.



22nd in ease of doing business



- 47** Ease of starting a business
- 48** Resolving insolvency
- 49** Employee regulations
- 50** Ease of entry: Number of countries with visa waiver
- 51** Foreign embassies or consulates
- 52** Level of shareholder protection
- 53** Operational risk climate
- 54** Workforce management risk

● Size = Score in particular variable

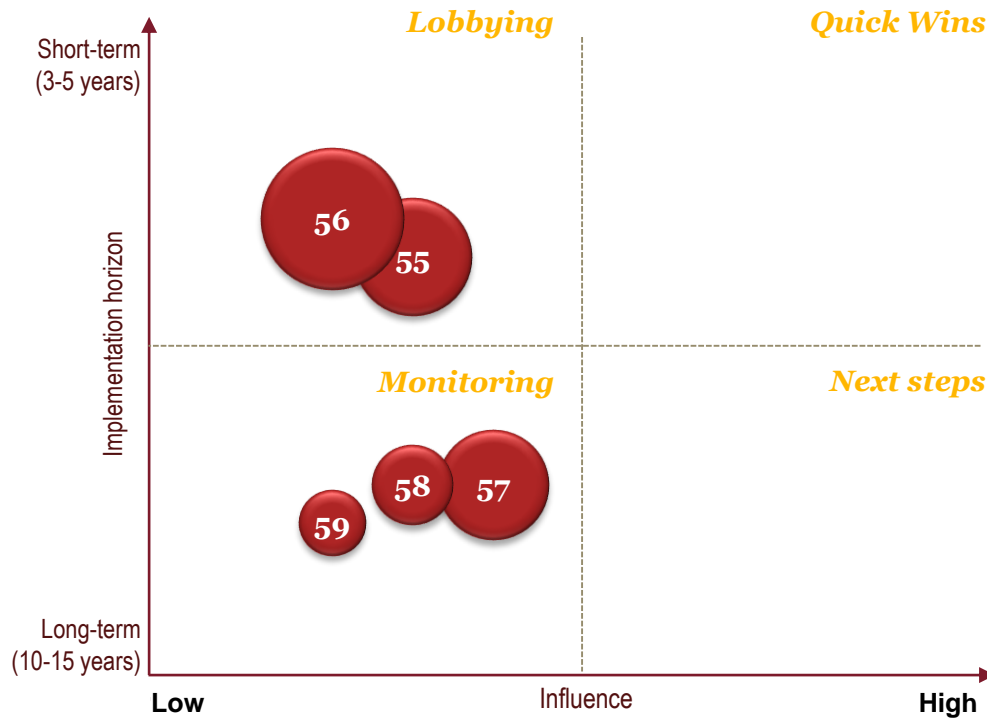


Ease of doing business

Variable	Definition
47. Ease of starting a business	Assessment of the bureaucratic and legal hurdles an entrepreneur must overcome to incorporate and register a new firm. Accounts for the number of procedures required to register a firm; the amount of time in days required to register a firm; the cost (as a percentage of per capita income) of official fees and fees for legally mandated legal or professional services; and the minimum amount of capital (as a percentage of per capita income) that an entrepreneur must deposit in a bank or with a notary before registration and up to three months following incorporation. Assessment scores gathered from Doing Business 2013, The World Bank Group. U.S. cities were differentiated from each other using the United States Small Business Friendliness 2013 Small Business Survey by Thumbtack.com in partnership with Kauffman Foundation.
48. Resolving insolvency	This topic identifies weaknesses in existing bankruptcy law and the main procedural and administrative bottlenecks in the bankruptcy process. Assessment scores gathered from Doing Business 2012, The World Bank Group.
49. Employee regulations	Sum of rank scores collected from the World Bank's Doing Business study relating to Ratio of minimum wage to average value added per worker / Notice period for redundancy dismissal (for a worker with 10 years of tenure, in salary weeks) / Paid annual leave for a worker with 20 years of tenure (in working days). Assessment scores gathered from Doing Business 2013, The World Bank Group.
50. Ease of entry: Number of countries with visa waiver	Number of nationalities able to enter the country for a tourist or business visit without a visa. Excludes those nationalities for whom only those with biometric, diplomatic or official passports may enter without a visa.
51. Foreign embassies or consulates	Number of countries that are represented by a consulate or embassy in each city. Figures sourced from Go Abroad.com.
52. Level of shareholder protection	Measurement of the strength of minority shareholder protection against misuse of corporate assets by directors for their personal gain. The Strength of the Investor Protection Index is the average of indices that measure "transparency of transactions," "liability for self-dealing" and "shareholders' ability to sue officers and directors for misconduct." Assessment scores gathered from Doing Business 2013, The World Bank Group.
53. Operational risk climate	Quantitative assessment of the risks to business profitability in each of the countries. Assessment accounts for present conditions and expectations for the coming two years. The operational risk model considers 10 separate risk criteria: security, political stability, government effectiveness, legal and regulatory environment, macroeconomic risks, foreign trade and payment issues, labor markets, financial risks, tax policy, standard of local infrastructure. The model uses 66 variables, of which about one-third are quantitative. Data produced by Economist Intelligence Unit's Risk Briefing.
54. Workforce management risk	Ranking based on staffing risk in each city associated with recruitment, employment, restructuring, retirement and retrenchment. Risk was assessed based on 30 factors grouped into five indicator areas: demographic risks associated with labor supply, the economy and the society; risks related to governmental policies that help or hinder the management of people; education risk factors associated with finding qualified professionals in a given city; talent development risk factors related to the quality and availability of recruiting and training resources; and risks associated with employment practices. A lower score indicates a lower degree of overall staffing risk. Rank scores sourced from the 2013 People Risk Index produced by Aon Consulting.



14th in cost



- 55** Total corporate tax rate
- 56** Cost of business occupancy
- 57** Cost of Living
- 58** iPhone index
- 59** Purchasing Power

Size = Score in particular variable



Cost

Variable	Definition
55. Total corporate tax rate	The total tax rate measures the amount of taxes and mandatory contributions payable by the business in the second year of operation, expressed as a share of commercial profits. The total tax rate is designed to provide a comprehensive measure of the cost of all the taxes a business bears. Data provided by PwC UK from "Paying Taxes 2014", taxes are accurate for year ended 31 December 2012. Some cities which were not included in the Paying Taxes 2014 study were calculated separately by our PwC local office using the TTC methodology. The Paying Taxes 2014 report can be found at http://www.pwc.com/gx/en/paying-taxes/
56. Cost of business occupancy	Annual gross rent divided by square feet of Class A office space. Gross rent includes lease rates, property taxes, maintenance and management costs. Data produced by CBRE Global Office Rents in USD.
57. Cost of living	A relative measure of the price of consumer goods by location, including groceries, restaurants, transportation and utilities. The CPI measure does not include accommodation expenses such as rent or mortgage. Figures provided by Numbeo.
58. iPhone index	Working hours required to buy an iPhone 4S 16GB. Data sourced from UBS Prices and Earning report 2012.
59. Purchasing Power	Domestic purchasing power is measured by an index of net hourly wages (where New York = 100) excluding rent prices. Net hourly wages divided by the cost of the entire basket of goods and services excluding rent. The basket of goods relates to 122 goods and services. Data sourced from UBS Prices and Earning report 2012.

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Appendix:

Detailed ranking per indicator and variable



Intellectual capital and innovation

Tools for a
changing world

Intellectual capital and innovation	Total score	Libraries with public access	Math/Science skills attainment	Literacy and enrollment	Percent of population with higher education	World university rankings	Innovation Cities Index	Intellectual property protection	Entrepreneurial environment
31 Paris	212	30	21	21	29	29	29	29	24
30 London	207	29	22	17	28	31	28	30	22
29 San Francisco	203	25	18	27	30	22	30	20	31
28 Stockholm	200	31	12	29	31	21	23	26	27
27 Toronto	198	27	25	23	27	19	27	25	25
26 New York	194	22	18	24	26	23	31	20	30
25 Los Angeles	190	19	18	25	23	30	26	20	29
24 Sydney	188	24	23	31	14	25	22	23	26
23 Chicago	182	20	18	26	25	26	19	20	28
22 Tokyo	179	23	27	22	21	24	20	24	18
21 Berlin	169	18	24	20	18	15	25	28	21
20 Seoul	168	13	28	30	17	27	21	15	17
19 Hong Kong	164	14	29	15	10	28	24	27	17
18 Singapore	153	6	30	8	19	18	17	31	24
17 Madrid	128	10	20	28	15	13	9	14	19
16 Milan	123	16	19	18	12	16	15	10	17
15 Shanghai	122	15	31	5	16	14	18	13	10
14 Moscow	111	26	13	16	24	12	12	2	6
13 Dubai	102	7	9	13	11	5	16	21	20
12 Beijing	100	3	26	5	9	20	14	13	10
11 Mexico City	97	28	6	9	20	9	10	5	10
10 Athens	93	9	11	20	22	5	5	8	13
9 Kuala Lumpur	78	8	7	10	8	5	13	16	11
8 Buenos Aires	76	21	3	14	13	8	6	1	10
7 Johannesburg	75	17	1	7	2	10	4	22	12
6 Istanbul	71	5	10	6	4	17	11	4	14
5 Sao Paulo	64	12	5	12	6	11	7	7	4
4 Rio de Janeiro	57	11	5	12	7	7	3	7	5
3 Mumbai	38	1	8	2	3	5	8	9	2
2 Jakarta	32	2	2	3	5	5	1	11	3
2 Nairobi	32	4	14	1	1	6	2	3	1



Technology readiness

Technology readiness	Total score	Internet access in schools	Broadband quality	Digital economy score	Software development and multi-media design
31 Stockholm	114	28	28	31	27
30 London	111	29	30	21	31
29 Seoul	110	30	31	22	27
28 New York	105	23	22	30	30
28 Hong Kong	105	25	29	26	25
26 Singapore	97	31	11	26	29
25 San Francisco	94	23	17	30	24
24 Los Angeles	93	23	20	30	20
23 Tokyo	87	16	23	20	28
22 Berlin	82	15	27	19	21
21 Chicago	81	23	15	30	13
20 Paris	77	12	24	18	23
19 Sydney	76	27	18	24	7
19 Toronto	76	26	16	23	11
17 Madrid	69	14	25	17	13
16 Dubai	59	24	3	15	17
16 Kuala Lumpur	59	17	12	13	17
14 Milan	56	5	26	16	9
14 Moscow	56	10	21	2	23
12 Beijing	53	19	10	5	19
11 Shanghai	51	19	10	5	17
10 Buenos Aires	47	4	19	7	17
9 Athens	45	8	13	14	10
8 Sao Paolo	34	3	2	10	19
7 Istanbul	32	11	7	8	6
7 Mumbai	32	9	14	3	6
5 Mexico City	28	7	6	11	4
4 Jakarta	27	13	5		8
3 Johannesburg	24		8	12	3
2 Rio de Janeiro	20	3	4	10	3
1 Nairobi	14	6		6	



City Gateway

Tools for a
changing world

City Gateway	Total score	Hotel rooms	International tourists	Number of International Association Meetings	Incoming/ Outgoing passenger flows	Airport to CBD access	Top 100 airports	On time flight departures
31 London	173	27	29	27	31	21	26	12
30 Beijing	162	30	22	26	26	29	28	1
29 Tokyo	159	26	12	18	29	17	27	30
28 Singapore	158	16	30	29	16	12	31	24
27 Hong Kong	155	24	31	21	18	24	29	8
26 Madrid	154	22	17	28	15	30	17	25
25 Paris	148	25	25	31	28	21	12	6
24 Dubai	146	23	24	10	19	31	20	19
23 Shanghai	142	31	23	15	25	22	24	2
22 New York	141	29	27	9	30	19	13	14
21 Kuala Lumpur	137	11	28	20	14	26	25	13
20 Seoul	129	9	14	24	20	15	30	17
19 Sydney	128	14	10	19	13	24	22	26
18 Berlin	117	20	19	30	6	9	10	23
17 Istanbul	116	7	26	25	21	11	21	5
16 San Francisco	114	15	15	7	17	26	19	15
15 Los Angeles	108	28	21	2	24	3	9	21
14 Toronto	102	17	11	13	12	9	18	22
13 Stockholm	101	4	18	23	5	19	14	18
12 Moscow	100	21	20	6	23	10	16	4
11 Johannesburg	99	1	8	4	4	28	23	31
10 Milan	96	18	7	11	8	16	9	27
10 Chicago	96	13	1	8	27	27	11	9
8 Mexico City	91	5	13	12	10	13	9	29
7 Athens	90	10	4	17	2	14	15	28
6 Sao Paolo	79	19	2	17	11	5	9	16
5 Buenos Aires	71	8	16	22	3	2	9	11
4 Jakarta	61	12	6	1	22	4	9	7
3 Mumbai	59	2	9	4	9	6	9	20
2 Rio de Janeiro	52	6	3	14	7	2	9	11
1 Nairobi	35	3	5	5	1	9	9	3



Health, safety, and security

Health, safety, and security	Total score	Hospitals and health employment	Health system performance	End of life care	Crime	Political environment
31 Stockholm	137	30	29	22	25	31
30 Toronto	135	26	26	28	26	29
29 Sydney	134	29	21	30	27	27
28 Berlin	133	25	25	29	24	30
27 London	117	25	23	31	18	20
27 Chicago	117	31	18	28	16	24
27 San Francisco	117	28	18	28	19	24
24 Singapore	115	14	30	21	30	20
23 New York	113	28	18	28	15	24
23 Paris	113	22	24	23	17	27
21 Tokyo	109	3	31	18	29	28
20 Milan	108	18	28	17	20	25
19 Los Angeles	103	25	18	28	8	24
18 Madrid	102	18	27	16	23	18
17 Dubai	93	16	19	20	28	10
17 Hong Kong	93	7	18	19	31	18
15 Athens	84	20	22	15	11	16
14 Seoul	80	12	20	13	21	14
13 Shanghai	64	10	18	8	22	6
12 Buenos Aires	59	20	9	6	9	15
11 Kuala Lumpur	54	10	8	12	13	11
10 Johannesburg	53	22		14	2	14
9 Mexico City	51	14	10	9	4	14
8 Beijing	46	5	18	8	10	5
7 Sao Paulo	37	15	7	4	3	8
6 Istanbul	35	3	11	11	6	4
5 Rio de Janeiro	34	12	7	4		10
4 Moscow	33	10	4	10	7	2
3 Mumbai	32	6	3		14	8
2 Jakarta	26		5	5	12	3
1 Nairobi	15	5	2	2	5	



Sustainability and the natural environment

Sustainability and the natural environment	Total score	Natural disaster risk	Thermal comfort	Recycled waste	Air pollution	Public park space
31 Stockholm	125	30	7	30	27	31
31 Sydney	125	16	28	26	31	24
29 Berlin	120	29	11	31	26	23
29 Paris	120	26	16	29	19	30
27 San Francisco	116	9	25	27	29	26
26 Toronto	110	29	8	23	30	20
25 Moscow	100	31	6	20	14	29
25 Chicago	100	26	9	21	29	15
25 Los Angeles	100	2	29	25	23	21
22 Madrid	94	27	19	8	22	18
21 New York	91	16	13	10	24	28
20 Milan	88	23	15	19	12	19
19 Buenos Aires	85	16	24	11	18	16
18 London	82	22	17	17	20	6
17 Athens	78	22	22	12	9	13
16 Nairobi	76	9	30	3	7	27
15 Mexico City	75	5	31	13	12	14
14 Singapore	74	22	4	16	22	10
13 Rio de Janeiro	72	16	23	2	6	25
12 Tokyo	71	1	21	14	26	9
11 Sao Paolo	67	22	26	1	15	3
10 Beijing	65	24	10	7	2	22
10 Hong Kong	65	3	19	22	17	4
8 Istanbul	63	22	21	6	12	2
7 Seoul	62	6	12	28	4	12
6 Mumbai	58	16	6	24	1	11
6 Johannesburg	58	10	28	5	8	7
4 Kuala Lumpur	57	22	1	9	17	8
3 Shanghai	47	7	14	18	3	5
2 Jakarta	44	5	2	15	5	17
1 Dubai	38	16	3	4	14	1



Demographics and livability

Demographics and livability	Total score	Cultural vibrancy	Quality of living	Working age population	Traffic congestion	Ease of commute	Relocation attractiveness
31 London	147	30	18	19	27	22	31
31 Sydney	147	25	30	5	30	28	29
29 San Francisco	142	24	20	27	14	29	28
28 Berlin	141	28	26	14	24	30	19
27 Hong Kong	139	22	25	26	16	26	24
27 Singapore	139	16	20	24	31	23	25
25 Paris	134	29	28	18	18	14	27
24 Stockholm	131	18	29	6	30	31	17
23 Toronto	129	19	31	17	19	20	23
22 Chicago	125	21	24	12	20	27	21
21 New York	124	31	17	8	14	24	30
20 Dubai	112	6	11	30	24	25	16
19 Madrid	106	12	22	3	26	21	22
18 Los Angeles	104	27	23	13	10	5	26
17 Tokyo	101	26	27	4	14	10	20
16 Milan	96	20	21		17	19	18
15 Shanghai	89	7	9	29	14	17	13
14 Kuala Lumpur	83	6	10	22	24	13	8
13 Johannesburg	82	9	8	20	28	8	9
12 Moscow	81	15	13	25	8	16	4
11 Beijing	73	4	12	31	7	12	7
10 Seoul	72	9	16	11	7	18	11
9 Rio de Janeiro	70	15	8	10	16	6	15
8 Buenos Aires	69	12	15	2	25		14
7 Nairobi	67	2		23	24	15	2
6 Mexico City	66	18	5	28		9	5
5 Istanbul	64	15	4	15	7	11	12
4 Sao Paulo	62	23	8	16	2	7	6
3 Athens	57	12	14	9	7	5	10
2 Jakarta	37	3	2	21	7	3	
1 Mumbai	26		3	7	10	2	3



Transportation and infrastructure

Transportation and infrastructure	Total score	Public transport systems	Mass transit coverage	Cost of public transport	Licensed taxis	Major Construction Activity	Housing
31 Singapore	143	29	22	14	21	26	31
30 Toronto	122	31	21	6	7	28	29
29 Seoul	121	25	24	23	26	9	14
28 Buenos Aires	120	18	18	30	30	15	9
27 Paris	119	29	31	9	28	4	18
26 Stockholm	116	29	29	3	27	6	22
26 Madrid	116	21	27	12	23	14	19
26 London	116	31	17		14	29	24
23 Berlin	111	29	28	5	9	11	29
22 Tokyo	109	25	12	17	22	13	20
21 Kuala Lumpur	108	8	16	27	29	16	12
21 Dubai	108	13	4	15	20	31	25
19 Moscow	105	17	23	25	15	22	3
18 Hong Kong	103	25	19	8	13	20	18
17 Mexico City	102	5	13	29	31	17	7
16 New York	99	21	26	7	5	19	21
15 Shanghai	98	17	8	21	17	21	14
14 Milan	95	17	25	12	18	5	18
14 Chicago	95	25	15	10	10	12	23
14 Beijing	95	12	14	28	19	10	12
11 San Francisco	93	17	30	4	8	8	26
10 Mumbai	90	3	20	26	12	27	2
9 Sao Paolo	89	7	7	20	16	30	9
8 Rio de Janeiro	85	6	5	19	24	24	7
7 Sydney	83	19	9	2	4	18	31
6 Jakarta	81	4	3	31	11	25	7
5 Los Angeles	78	12	10	18	2	7	29
4 Athens	73	9	11	16	25	2	10
4 Istanbul	73	12	6	22	3	23	7
2 Johannesburg	45	3	3	13	6	2	18
1 Nairobi	33		3	24		3	



Economic clout

Economic clout	Total score	Number of Global 500 headquarters	Financial and business services employment	Attracting FDI	Productivity	Rate of real GDP growth
31 London	123	27	29	30	24	13
30 New York	119	28	24	22	30	15
30 Beijing	119	30	28	27	3	31
28 Paris	112	29	27	25	27	4
27 Shanghai	108	24	12	31	11	30
26 Singapore	98	15	14	30	18	21
25 San Francisco	97	15	30	4	31	17
24 Toronto	95	25	23	15	23	9
23 Hong Kong	94	20	13	27	16	18
22 Tokyo	92	31	6	23	25	7
21 Moscow	89	24	11	25	13	16
20 Seoul	88	26	22	16	10	14
19 Sydney	87	18	19	21	21	8
18 Milan	86	15	31	15	22	3
17 Chicago	83	15	26	3	28	11
16 Los Angeles	82	10	16	5	29	22
16 Stockholm	82	18	25	7	26	6
14 Kuala Lumpur	79	10	15	15	12	27
14 Madrid	79	21	17	21	19	1
12 Dubai	76	6	2	28	15	25
12 Mumbai	76	24	5	19	2	26
10 Berlin	68	10	21	15	17	5
9 Sao Paolo	64	20	9	18	7	10
8 Mexico City	63	18	7	9	9	20
7 Istanbul	62	10	3	17	8	24
6 Rio de Janeiro	61	15	8	11	4	23
5 Johannesburg	57	6	20	6	6	19
4 Jakarta	53	6	4	10	5	28
3 Buenos Aires	50	6	10	8	14	12
2 Athens	48	6	18	2	20	2
1 Nairobi	39	6	1	2	1	29



Ease of doing business

Ease of doing business	Total score	Ease of starting a business	Resolving insolvency	Employee regulations	Ease of entry: Number of countries with visa waiver	Foreign embassies or consulates	Level of shareholder protection	Operational risk climate	Workforce management risk
31 Singapore	226	29	30	27	31	17	31	31	30
30 Hong Kong	204	28	22	25	30	13	30	30	26
29 New York	201	27	26	31	9	25	27	25	31
28 Toronto	188	30	29	15	15	14	29	27	29
27 London	180	23	28		27	30	23	20	28
26 Los Angeles	178	24	26	30	9	10	27	25	27
25 Chicago	173	26	26	29	9	6	27	25	25
25 San Francisco	173	26	26	28	9	8	27	25	24
23 Seoul	166	21	27	17	28	21	19	16	17
22 Stockholm	165	17	18	11	22	24	20	30	23
21 Kuala Lumpur	163	17	14	22	29	20	29	17	15
20 Tokyo	158	11	31	13	16	29	21	19	18
19 Paris	152	20	15	9	20	31	12	25	20
18 Sydney	151	31	21	14	10	12	14	28	21
17 Berlin	138	12	20	6	20	26	9	26	19
16 Mexico City	132	19	17	26	18	15	19	11	7
15 Madrid	131	7	19	16	23	23	9	18	16
14 Johannesburg	113	18	9	13	26		23	13	10
13 Dubai	105	22	6	24	12	2		16	22
12 Milan	104	14	16	3	18	8	19	14	12
11 Beijing	100	5	11	19	3	29	9	10	14
10 Athens	91	6	13	21	11	22	4	12	2
9 Istanbul	85	15	4	9	22	11	14	6	4
8 Sao Paulo	83	10	3	5	25	9	12	8	11
7 Moscow	81	13	12	10	5	27	4	4	6
6 Rio de Janeiro	75	10	3	5	25	3	12	8	9
5 Shanghai	74	5	11	19	3	4	9	10	13
4 Jakarta	72	2		20	4	18	19	3	5
3 Mumbai	69		5	23	3	5	19	5	8
2 Nairobi	65	8	7	9	13	16	9	2	
1 Buenos Aires	54	3	8	2	14	19	4		3



Cost

Cost	Total score	Total corporate tax	Cost of business occupancy	Cost of Living	iPhone index	Purchasing Power
31 Los Angeles	124	20	27	19	28	30
30 Johannesburg	114	26	30	27	14	17
29 Chicago	112	17	25	12	30	28
28 Toronto	111	29	21	11	25	25
27 Dubai	103	31	14	18	21	19
26 San Francisco	101	21	17	6	28	29
26 Berlin	101	14	29	15	17	26
24 Kuala Lumpur	97	23	26	28	11	9
23 Madrid	94	9	24	20	20	21
22 New York	89	16	12	3	31	27
21 Sydney	84	15	7	2	29	31
20 Seoul	82	27	13	10	16	16
19 Stockholm	80	11	18	7	22	22
18 Hong Kong	79	30		13	20	15
18 Athens	79	19	28	17	9	6
16 Istanbul	78	22	16	25	7	8
16 Nairobi	78	18	31	24	3	2
14 Jakarta	77	25	20	30		
13 London	75	24	3		24	23
12 Tokyo	72	13	5	8	26	20
11 Singapore	71	28	11	5	15	12
10 Mexico City	69	10	22	29	4	4
9 Milan	68	4	19	9	18	18
8 Paris	62	5	6	4	23	24
7 Mumbai	59	8	15	31	2	3
6 Sao Paolo	58	3	8	21	13	13
5 Moscow	56	12	4	14	12	14
5 Buenos Aires	56		23	16	5	11
3 Shanghai	55	6	9	23	10	7
2 Rio de Janeiro	52	2	10	22	8	10
1 Beijing	46	7	2	26	6	5