

Global Power City Index-Comprehensive power of cities to enhance their competitiveness

Hiroo Ichikawa

1. Outline of the Global Power City Index

Research Organization

GPCI-2009 is created by a research organization comprised of four bodies. The Committee, which has five scholars including Sir Peter Hall as Principal Advisor and Heizo Takenaka as Chairman, supervises the key areas of the ranking process. The Working Group researches and analyzes each city to provide sufficient materials for evaluating cities, and creates the rankings of the cities, based on advice from the Committee and Expert Partners from the perspective of global actors in each important phase. Furthermore, a third-party peer review by two Peer Reviewers has been undertaken, to obtain validation and criticism to ensure the fairness of the ranking. (see Table 10.1)

Table10.1 Research Organization

Title	Member	Role
Principal Advisor: Sir Peter Hall Professor, University College London	Chairman: Dr. Heizo Takenaka (Professor at Keio University) Members: Dr. Richard Bender (Professor Emeritus of	Supervision of entire process

Steering Committee	<p>Architecture</p> <p>and former Dean at the University of California, Berkeley)</p> <p>Dr. Saskia Sassen (Professor at Columbia University)</p> <p>Dr. Hiroo Ichikawa (Professor and Dean at Meiji University)</p>	
Peer Reviewers	<p>Dr. Allen J. Scott (Professor of Geography and Public Policy at the University of California, Los Angeles)</p> <p>Dr. Peter Nijkamp (Professor at VU University Amsterdam)</p>	Peer review
Expert Partners	Members in each “actor” category	Provision of advice from the perspective of global actors
Working Group	<p>Principal: Dr. Hiroo Ichikawa</p> <p>Members:</p> <p>Institute for Urban Strategies</p> <p>The Mori Memorial Foundation</p> <p>Mitsubishi Research Institute, Inc.</p>	Creation and revision of draft versions of the Index

Cities for GPCI-2009

The Global Power City Index-2009 looks at 35 cities worldwide.

The following three criteria are used in selecting these 35 cities from the various representative cities of the world.

Selection Criteria 1:

Cities listed in the top 10 according to influential comparative city rankings such as “The Global Financial Centres Index”, “Worldwide Centers of Commerce Index”, and “Cities of Opportunity”.

Selection Criteria 2:

Major cities in countries listed in the top 10 in terms of competitiveness according to influential international competitiveness rankings such as ‘World Economic Forum’ and ‘IMD’.

Selection Criteria 3:

Cities brought up as suitable candidates by members of the committee reviewing the Global Power City Index

Consequently, 13 cities are chosen from Asia includes Sydney, 14 cities are chosen from Europe and Africa, and 8 cities are chosen from America. (see Figure 10.1)

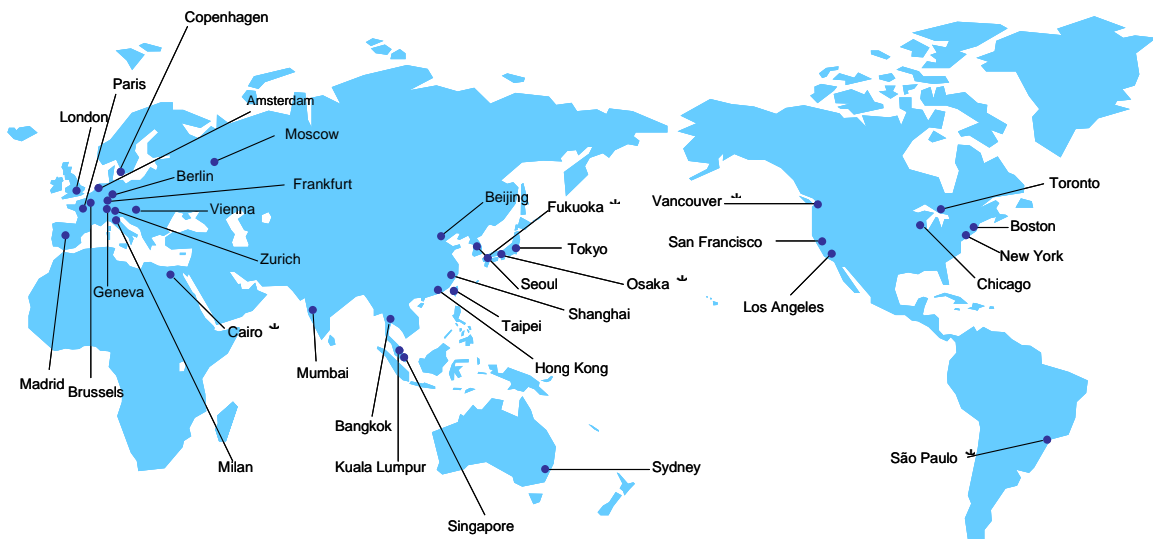


Figure 10.1 Thirty Five Cities Selected for GPCI

2. Methodology of Ranking Creation

Function-specific Ranking

The function-specific ranking is comprised of the six main functions of “Economy,” “Research&Development,” “Cultural Interaction,” “Livability,” “Ecology and Natural Environment,” and “Accessibility” which represent the main strengths of a city. Each function is composed of an “Indicator Group” categorizing each factor of the function. Sixty-nine indicators, which are based on actual data of the cities, are distributed in each Indicator Group.

Initially, data for each indicator of the city is collected and converted into an index number relative to the 35 cities. Then, these index numbers are averaged in each Indicator Group, showing each score of the Indicator Group. The function score is obtained by summing up the scores of the Indicator Group. Finally, a grand total of the function scores is obtained, called the “comprehensive score.” The Comprehensive ranking and the rankings in each function are all generated by this method.

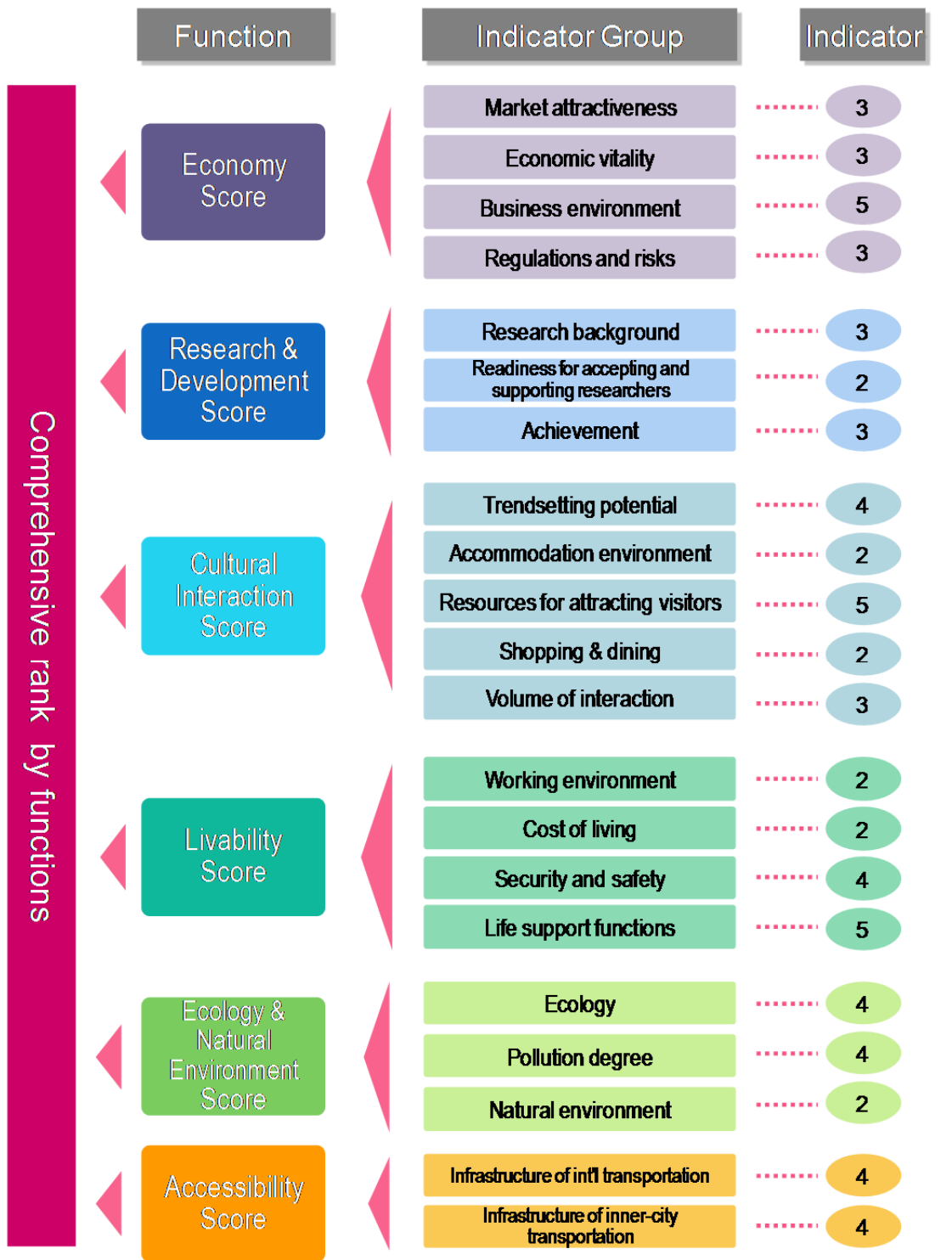
Actor-specific Ranking

The other ranking created through this research shows the attractiveness of the city to those actors. Four major actors leading urban activities are defined as “Global Actors”: “Managers,” “Researchers,” “Artists,” and “Visitors”, and one local actor: “Residents,” who account for the majority of the city. These actors focus on creating

the actor-specific ranking.

Each actor naturally has different expectations and priorities on their urban activities based on their occupations. Therefore, a profile of each actor is described and his/her demands for the city in performing his/her role are defined as “factors.” Then, a matrix is constructed of the 69 indicators of the function-based ranking and each indicator corresponding to the factor of each actor is selected. Since each actor selects a suitable indicator, some indicators are used repeatedly by different actors. Finally, the scores for each actor are summed up and reflected on the actor-specific ranking.

As already explained, GPCI-2009 is composed of two different rankings, a function-specific ranking measuring the functional aspects of the cities, and an actor-specific ranking measuring the cities from the perspective of its dwellers. The Global Power City Index aims to capture the comprehensive attractiveness of cities from multiple angles, through both function- and actor-specific rankings. (see Figure 10.3.)



Total: 69 Indicators

Figure 10.2 Flow of Creating the Function-specific Ranking



Figure 10.3 Flow of Creating the Actor-specific Ranking

3. Findings on GPCI-2009

(1) Function-specific Ranking

The function-specific comprehensive ranking gives New York, London, and Paris as the top three, followed by Tokyo. Besides the top five cities in the Comprehensive ranking, some cities rank within the top five in specific functions in which they are strong. For instance, Vancouver (23rd), Toronto (15th), and Geneva (19th) are in the top five in the Livability ranking. Meanwhile, Frankfurt (16th) and Sao Paulo (33rd) are both within the top 10 in the Environment. Sao Paulo has a low score in the “Pollution” indicator, but a high score in the “Ecology” indicator, which measures environmental efforts such as energy reuse, and so its Environment ranking is pulled up.

Focusing on Tokyo, it is the only city which ranks within the top five in both Economy and Environment among the 35 cities. However, although Tokyo ranks among the top in Economy, Research & Development, and Environment, other functions such as Cultural Interaction, Livability, and Accessibility are beaten by Singapore. Other cities are also approaching Tokyo in these functions.

Observing the cities by continent, Asian cities tend to rank high in Economy, even if they are not necessarily high in the Comprehensive ranking such as Shanghai (21st) and Beijing (26th). On the other hand, European cities tend to be ranked high in the Livability and Environment rankings; more than 7 cities from Europe are among the top 10 in these functions. Looking at the rankings overall, Asian cities are strong in Economy and European cities are strong in Livability and Environment. (see Figure

10.4 and 10.5)

(2) Actor-specific Ranking

New York, London, Paris, and Tokyo, the top four cities in the Comprehensive ranking, score high in all actor-specific rankings. Meanwhile, Paris and Tokyo are not in the top five for the Manager ranking. Furthermore, Tokyo is 7th in the Visitor ranking whereas the other three cities are in the top three in this ranking. New York dominates the top slot in four actor-specific rankings, Researcher, Artist, Visitor, and Resident, and second position in Manager, showing it is the most attractive city to all actors. The Asian cities of Shanghai (21st), Beijing (26th), and Hong Kong (10th) are ranked within the top 10 in both the Manager and Visitor rankings. European cities in the upper-middle ranks in the Comprehensive ranking are popular with Artists and Residents. Especially, Berlin, 6th in the Comprehensive ranking, is ranked 3rd in both these actor-specific rankings. (see Figure 10.6)

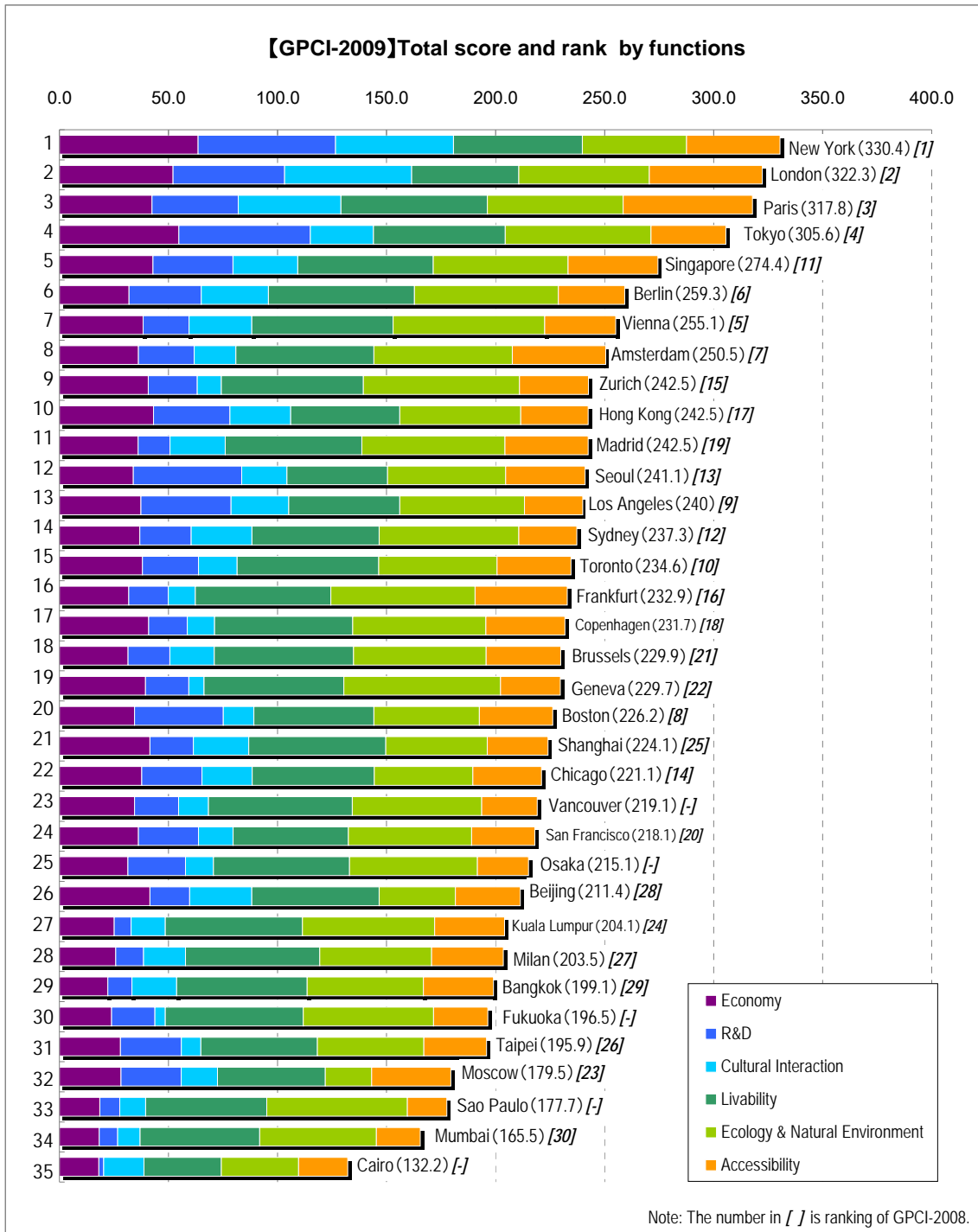


Figure10.4 Function-specific Comprehensive Ranking

Rank	Total Score	Economy		Research & Development		Cultural Interaction		Livability		Ecology & Natural Environment		Accessibility		
1	New York	330.4	New York	63.6	New York	63.0	London	58.2	Paris	67.2	Geneva	71.8	Paris	59.3
2	London	322.3	Tokyo	54.7	Tokyo	60.3	New York	54.1	Berlin	67.0	Zurich	71.7	London	51.8
3	Paris	317.8	London	52.1	London	51.2	Paris	47.0	Vancouver	65.9	Vienna	69.6	Amsterdam	42.9
4	Tokyo	305.6	Hong Kong	43.2	Seoul	49.7	Berlin	30.8	Zurich	65.1	Tokyo	67.0	New York	42.9
5	Singapore	274.4	Singapore	42.8	Los Angeles	41.3	Singapore	29.7	Toronto	64.9	Berlin	66.1	Frankfurt	42.3
6	Berlin	259.3	Paris	42.5	Boston	40.7	Tokyo	28.9	Vienna	64.9	Frankfurt	66.0	Singapore	41.2
7	Vienna	255.1	Beijing	41.5	Paris	39.5	Vienna	28.7	Geneva	64.2	Madrid	65.7	Madrid	38.2
8	Amsterdam	250.5	Shanghai	41.4	Singapore	36.7	Beijing	28.5	Brussels	63.9	Sao Paulo	64.5	Seoul	36.6
9	Zurich	242.5	Copenhagen	40.9	Hong Kong	34.9	Hong Kong	27.9	Copenhagen	63.4	Sydney	64.1	Moscow	36.3
10	Hong Kong	242.5	Zurich	40.7	Berlin	33.2	Sydney	27.9	Amsterdam	63.3	Amsterdam	63.4	Copenhagen	36.1
11	Madrid	242.1	Geneva	39.4	Taipei	27.9	Los Angeles	26.4	Fukuoka	63.3	Paris	62.3	Tokyo	34.3
12	Seoul	241.1	Vienna	38.3	Chicago	27.6	Shanghai	25.4	Kuala Lumpur	62.9	Singapore	61.8	Brussels	34.2
13	Los Angeles	240.0	Toronto	38.1	San Francisco	27.5	Madrid	25.3	Shanghai	62.9	Copenhagen	61.1	Toronto	33.9
14	Sydney	237.3	Chicago	37.8	Moscow	27.5	Chicago	23.1	Madrid	62.6	Brussels	60.8	Boston	33.7
15	Toronto	234.6	Los Angeles	37.4	Osaka	26.4	Seoul	20.7	Osaka	62.4	Kuala Lumpur	60.5	Milan	32.9
16	Frankfurt	232.9	Sydney	36.9	Amsterdam	25.7	Bangkok	20.5	Frankfurt	62.2	London	59.8	Vienna	32.6
17	Copenhagen	231.7	San Francisco	36.2	Toronto	25.7	Brussels	20.4	Singapore	62.2	Fukuoka	59.7	Bangkok	32.1
18	Brussels	229.9	Amsterdam	36.1	Sydney	23.6	Milan	19.1	Milan	61.6	Vancouver	59.4	Kuala Lumpur	32.1
19	Geneva	229.7	Madrid	36.1	Zurich	22.5	Amsterdam	19.1	Tokyo	60.4	Osaka	58.7	Chicago	31.5
20	Boston	226.2	Boston	34.5	Vienna	21.1	Cairo	18.4	Bangkok	59.8	Los Angeles	57.1	Zurich	31.5
21	Shanghai	224.1	Vancouver	34.5	Vancouver	20.2	Toronto	17.8	New York	59.1	San Francisco	56.5	Hong Kong	30.9
22	Chicago	221.1	Seoul	33.9	Shanghai	19.9	Moscow	16.7	Beijing	58.5	Hong Kong	55.5	Berlin	30.4
23	Vancouver	219.1	Berlin	31.9	Geneva	19.9	San Francisco	15.9	Sydney	58.3	Toronto	54.3	Beijing	29.8
24	San Francisco	218.1	Frankfurt	31.7	Fukuoka	19.8	Kuala Lumpur	15.7	Chicago	56.0	Seoul	54.1	San Francisco	29.1
25	Osaka	215.1	Brussels	31.4	Brussels	19.2	Boston	14.0	Sao Paulo	55.5	Mumbai	53.6	Taipei	28.8
26	Beijing	211.4	Osaka	31.3	Frankfurt	18.2	Vancouver	13.7	Boston	55.0	Bangkok	53.3	Shanghai	27.9
27	Kuala Lumpur	204.1	Moscow	28.2	Beijing	18.2	Osaka	12.9	Mumbai	54.8	Milan	51.3	Geneva	27.5
28	Milan	203.5	Taipei	28.0	Copenhagen	17.8	Copenhagen	12.4	Taipei	53.5	Taipei	48.8	Los Angeles	26.8
29	Bangkok	199.1	Milan	25.8	Madrid	14.6	Frankfurt	12.3	San Francisco	52.8	Boston	48.4	Sydney	26.6
30	Fukuoka	196.5	Kuala Lumpur	25.1	Milan	12.8	Sao Paulo	11.8	Los Angeles	51.0	New York	47.7	Vancouver	25.5
31	Taipei	195.9	Fukuoka	23.9	Bangkok	11.1	Zurich	11.0	Hong Kong	50.1	Shanghai	46.5	Fukuoka	24.9
32	Moscow	179.5	Bangkok	22.2	Sao Paulo	9.2	Mumbai	10.2	Moscow	49.4	Chicago	45.2	Osaka	23.5
33	Sao Paulo	177.7	Sao Paulo	18.5	Mumbai	8.4	Taipei	9.0	London	49.1	Cairo	35.4	Cairo	22.5
34	Mumbai	165.5	Mumbai	18.3	Kuala Lumpur	7.8	Geneva	7.0	Seoul	46.2	Beijing	35.0	Mumbai	20.1
35	Cairo	132.2	Cairo	18.0	Cairo	2.3	Fukuoka	4.7	Cairo	35.5	Moscow	21.3	Sao Paulo	18.1

Top 5 cities in total ranking by function

Figure 10.5 Function-specific Ranking

Rank	Manager	Researcher		Artist		Visitor		Resident		
1	London	55.2	New York	62.6	New York	60.3	New York	59.4	New York	64.5
2	New York	55.2	London	57.7	Paris	58.9	London	57.7	Paris	61.4
3	Singapore	53.8	Tokyo	56.8	Berlin	48.9	Paris	54.8	Berlin	60.9
4	Hong Kong	48.6	Paris	51.4	London	48.8	Beijing	49.0	Tokyo	60.7
5	Shanghai	48.3	Seoul	44.4	Tokyo	46.9	Shanghai	46.9	London	59.0
6	Paris	47.5	Los Angeles	43.4	Chicago	39.5	Vienna	46.1	Amsterdam	57.9
7	Tokyo	46.5	Boston	42.7	Vienna	39.5	Tokyo	46.0	Zurich	57.6
8	Beijing	46.1	Singapore	42.6	Los Angeles	38.9	Berlin	45.5	Vienna	57.0
9	Zurich	44.6	Berlin	39.6	Amsterdam	37.6	Singapore	43.6	Copenhagen	56.5
10	Geneva	44.5	Chicago	37.0	Madrid	35.5	Hong Kong	42.3	Vancouver	56.0
11	Vienna	44.0	Hong Kong	36.4	Toronto	35.0	Madrid	41.3	Toronto	55.8
12	Amsterdam	43.9	San Francisco	36.2	Brussels	33.5	Kuala Lumpur	40.5	Geneva	55.0
13	Copenhagen	43.7	Sydney	35.8	Milan	33.4	Bangkok	40.3	Hong Kong	54.1
14	Toronto	43.2	Amsterdam	34.9	Shanghai	32.9	Brussels	40.0	Osaka	54.0
15	Madrid	41.8	Vienna	33.9	San Francisco	32.9	Amsterdam	39.8	Sydney	54.0
16	Vancouver	41.8	Zurich	32.4	Kuala Lumpur	32.4	Seoul	38.8	Fukuoka	53.1
17	Chicago	40.4	Copenhagen	32.2	Copenhagen	31.9	Toronto	38.7	Singapore	52.8
18	Seoul	40.3	Geneva	31.6	Singapore	31.9	Sydney	37.4	Chicago	52.6
19	Sydney	39.9	Moscow	30.4	Bangkok	31.5	Chicago	37.2	Brussels	52.2
20	Boston	39.8	Toronto	30.0	Frankfurt	31.2	Milan	36.8	Boston	52.1
21	Berlin	39.5	Osaka	29.7	Vancouver	31.2	Frankfurt	36.4	Frankfurt	51.7
22	Los Angeles	39.4	Brussels	28.7	Zurich	31.0	Cairo	35.1	Los Angeles	50.8
23	Brussels	39.2	Vancouver	27.2	Boston	30.9	Copenhagen	35.0	Seoul	50.6
24	Frankfurt	38.5	Shanghai	27.1	Moscow	30.5	Osaka	34.8	Shanghai	50.6
25	Kuala Lumpur	36.9	Taipei	26.3	Sydney	29.6	Vancouver	34.5	Madrid	50.0
26	San Francisco	36.3	Fukuoka	26.3	Beijing	29.3	Boston	34.4	San Francisco	49.5
27	Taipei	35.7	Beijing	26.1	Osaka	29.1	Zurich	34.2	Beijing	48.4
28	Osaka	35.3	Frankfurt	25.5	Geneva	28.3	Los Angeles	34.0	Milan	45.4
29	Bangkok	32.7	Madrid	25.4	Taipei	28.1	Taipei	33.8	Bangkok	45.1
30	Fukuoka	32.1	Bangkok	23.8	Fukuoka	26.7	San Francisco	32.2	Taipei	43.6
31	Milan	31.4	Milan	22.6	Seoul	25.8	Geneva	32.2	Kuala Lumpur	39.7
32	Moscow	30.9	Kuala Lumpur	21.3	Sao Paulo	25.5	Moscow	30.4	Mumbai	39.2
33	Mumbai	27.0	Sao Paulo	19.0	Hong Kong	24.4	Mumbai	28.9	Sao Paulo	37.4
34	Cairo	26.7	Mumbai	18.9	Mumbai	23.1	Fukuoka	28.5	Moscow	34.1
35	Sao Paulo	22.5	Cairo	11.9	Cairo	18.9	Sao Paulo	24.1	Cairo	27.2

Top 5 cities in total ranking by function

Figure 10.6 Actor-specific Ranking

(3) Grouping of 35 Cities

The 35 cities can be categorized into five groups based on a cluster analysis of the cities with their scores in each function,. New York, London, Paris, and Tokyo are classified into the group of cities that are highly evaluated in every function. Other cities are grouped into those with strengths such as Economy and Research & Development, or Livability and Environment, etc. (see Figure 10.7)

Group A: Super Cities and All-round Cities

This group is subdivided into two types of group: one implies New York & London, the other does Tokyo & Paris. New York and London have absolute strength in Economy, Research & Development, Cultural Interaction, and Accessibility, however, each has weaknesses, like Superman has, such as Environment for New York, and Livability for London. Tokyo and Paris have all-round power in every function, but none of their strengths is as powerful as the strongest functions of New York and London.

Group B: Cities being predominant in Livability and Environment

This group includes European upper-middle ranked cities (above 15th), Canadian cities, and Asian cities in advanced countries. Cities in this group are strong in Livability and Environment.

Group C: Cities being inferior in Economy and Research & Development

This group includes Asian cities in countries that do not use Chinese characters and BRICs cities except for China. Cities in this group are evaluated lower than the average in all functions, and Economy and Research & Development are weak in particular.

Group D: Cities being predominant in Economy and Research & Development

This group includes Asian cities in countries that use Chinese characters and American cities except for New York. Cities in this group mostly have average power in each function, and they are especially strong in Economy and Research & Development.

Group E: Vulnerable Cities

Moscow and Cairo are categorized in this group. These cities are generally weak in all of the functions and remarkably weak in Livability and Environment, showing their vulnerability in these functions.

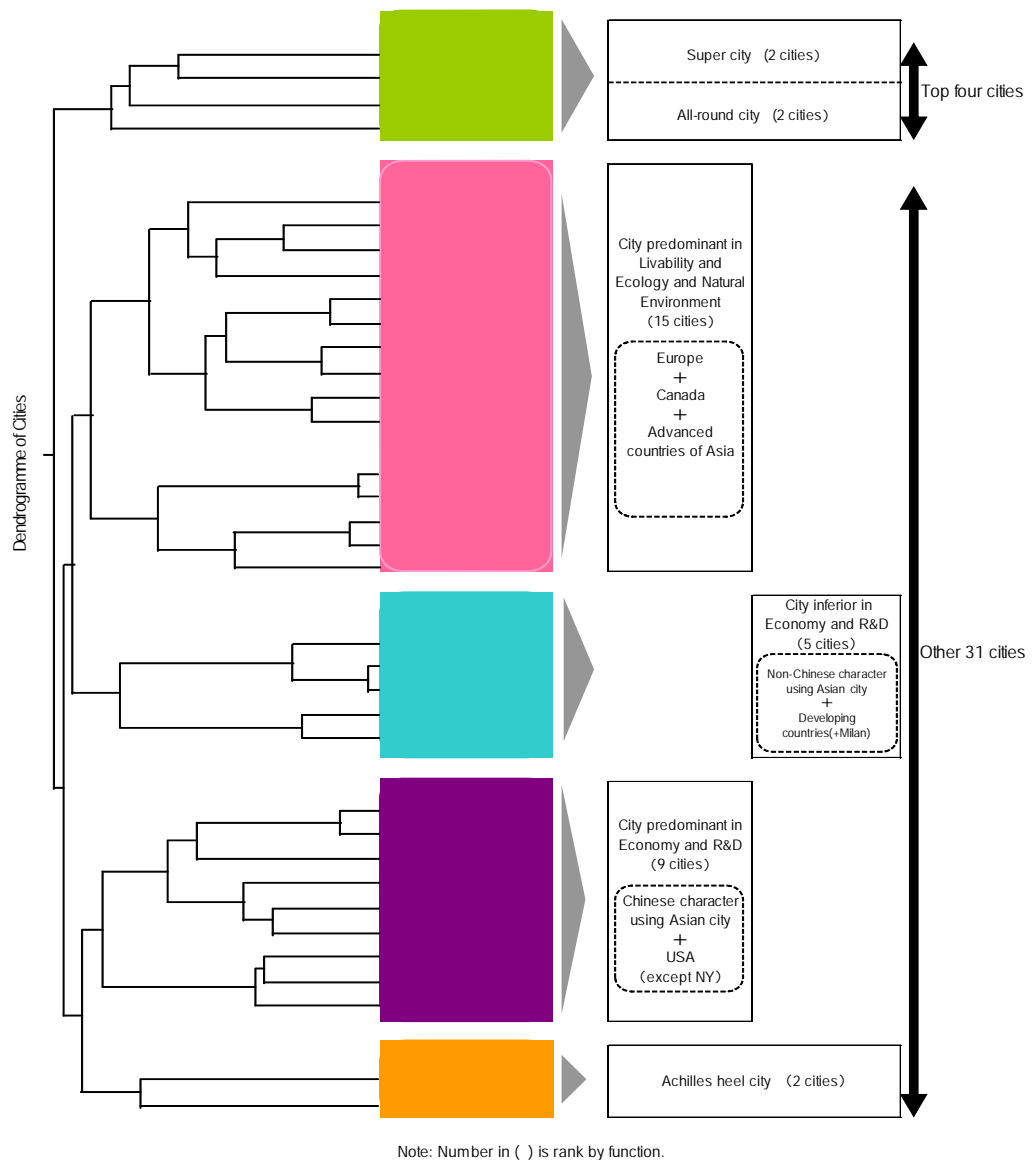


Figure 10.7 Tree Diagram based on Grouping Analysis on 35 Cities

(4) Comparison of Top 4 Cities

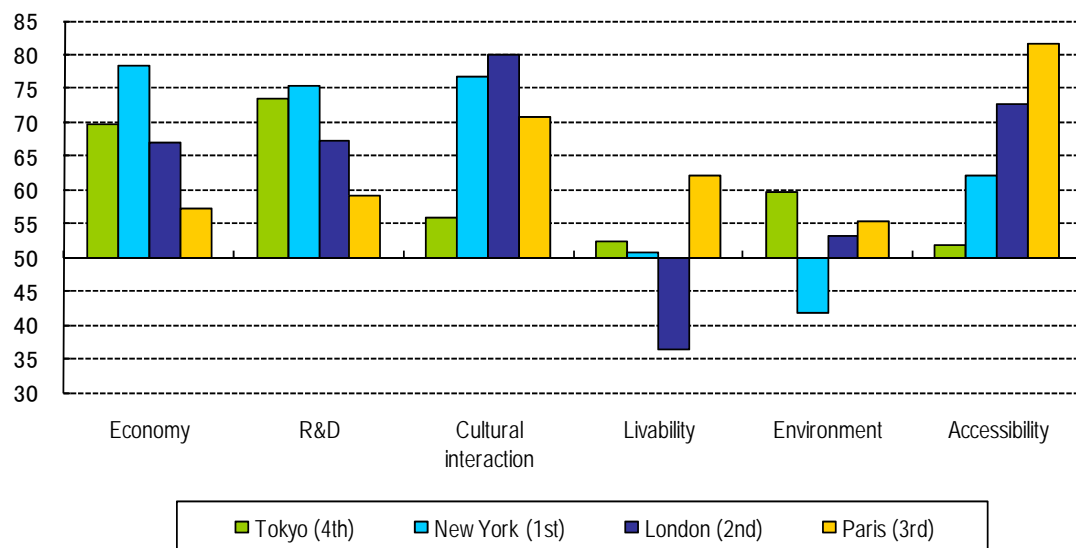
Comparing the top four cities in the comprehensive ranking, New York and London have their own weaknesses in Livability and Environment. However, other

functions are strong enough to compensate for such weaknesses, pulling up their Comprehensive ranking to the top and 2nd, respectively.

Paris and Tokyo both score above average in all functions showing their overall strength as “All-round cities.” Comparing Paris and Tokyo, Paris has higher scores in Cultural Interaction, Livability, and Accessibility than Tokyo, thus maintaining its 3rd position.

Tokyo is strong in Economy and Research & Development, as well as in Environment. Especially, the Environment score is the top among the four cities, showing that Tokyo is unique as an economically strong yet environment-friendly city. Besides its advantage in these functions, Livability and Accessibility are both around the average score among the 35 cities. (see Figure 10.8)

Figure 10.8 Deviation Analysis for Top 4 Cities (Function-specific)



cities. Tokyo’s Comprehensive score benefits from its strength in Economy and R&D.

Hong Kong is strong in Economy and Cultural Interaction while Livability,

Environment, and Accessibility are relatively weak. Seoul has remarkable strength in R&D but considerable weakness in Livability. (see Figure 9.)

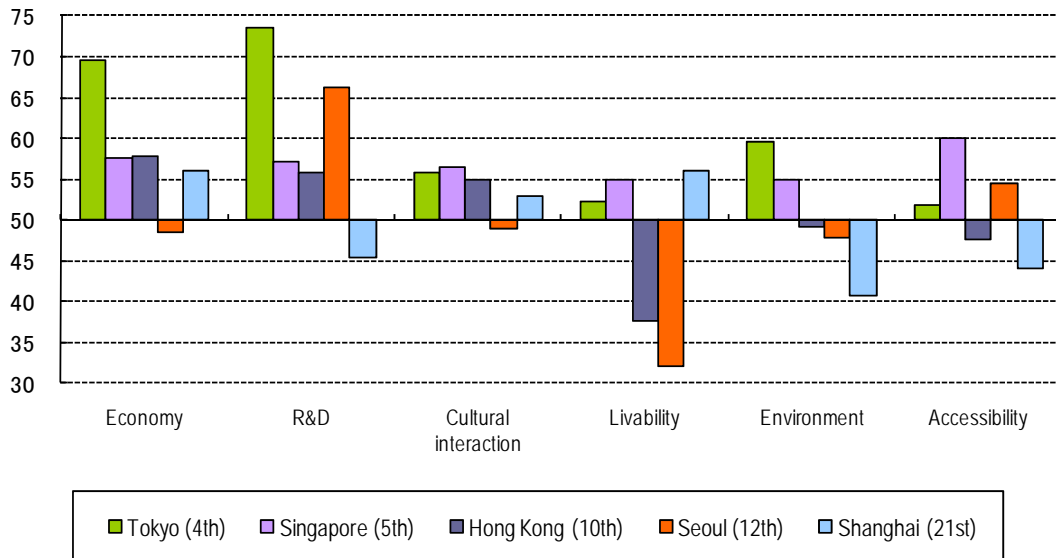


Figure 10.9 Deviation Analysis for Major Asian Cities (Function-specific)

(5)-2 Comparison of Actor-specific Ranking

The deviation chart shows that the difference in score between these cities is large in the Researcher ranking and small in the Visitor and Resident rankings.

Tokyo is scored the highest in the Researcher, Artist, and Resident rankings, with a particularly high score for Researcher. Furthermore, Tokyo's Artist score is the only one which exceeds the overall average while the other four cities all score below the average. Meanwhile, Tokyo's Manager score is the second lowest among the five cities, being evaluated lower than Singapore, Hong Kong, and Shanghai by this actor.

(see Figure 10.10)

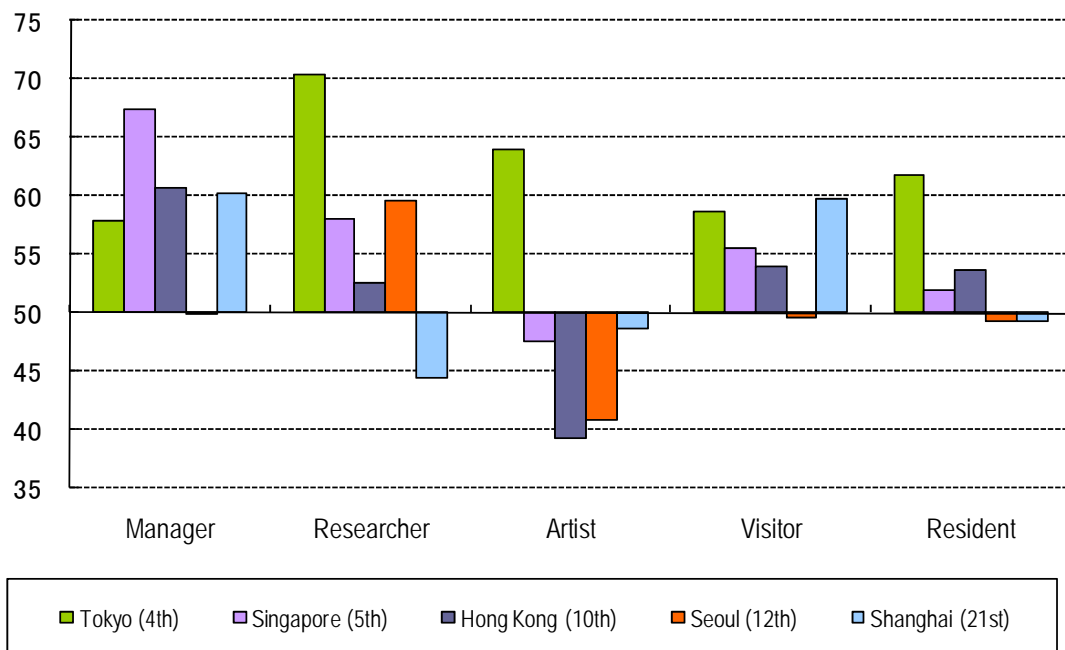


Figure 10.10 Deviation Analysis for Major Asian Cities (Actor-specific)

Deviation analysis is also applied to the cities ranked 6th to 12th in the Comprehensive ranking. These cities are all from Europe and Asia, composing the secondary group in the Comprehensive ranking.

Five cities in Europe, Berlin, Vienna, Amsterdam, Zurich, and Madrid, score high in Livability and Environment while Hong Kong and Seoul score low in these functions, showing clear differences between the cities in each continent. The weakness of each European city reflects its character. For instance, Berlin is weak in Economy; Vienna and Madrid are weak in R&D; and Zurich and Amsterdam are weak in Cultural Interaction.

Hong Kong and Seoul are both strong in Research & Development, but weak in

Livability and Environment compared to European cities. (see Figure 10.11)

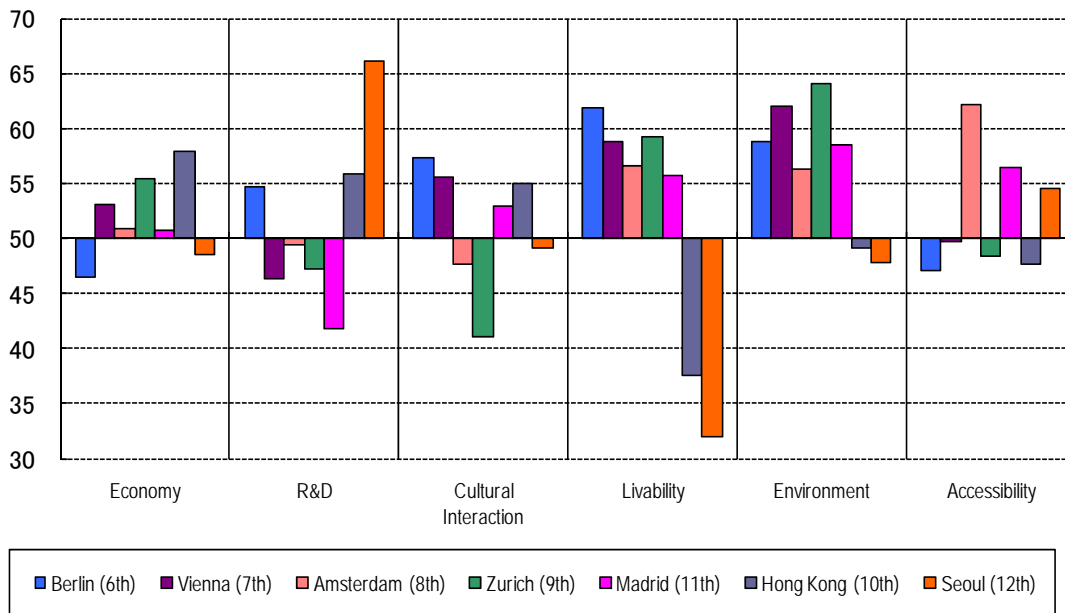


Figure 10.11 Deviation Analysis for European and Asian Cities in the Secondary Group (Function-specific)

(7) Analysis of the Strengths and Weaknesses of Tokyo

Deviation Analysis for the 69 Indicators of Tokyo

Tokyo's strengths and weaknesses are analyzed below based on deviation analysis of the 69 indicators. Indicators with remarkably high scores are those in the Economy, Research & Development, and Environment functions. The number of ISO 14001 Certified Companies, Number of Top 300 Companies in the World, and R&D Expenditure are excellent compared to other cities. Indicators with low scores among the 35 cities are those in Livability and Accessibility functions. Especially, Travel Time between Inner City to the International Airport is extremely inferior to those of

the other cities. Furthermore, Corporate Tax Rate is the worst among the 35 cities, making it difficult for overseas companies to do business in Tokyo. (see Figure 10.12)

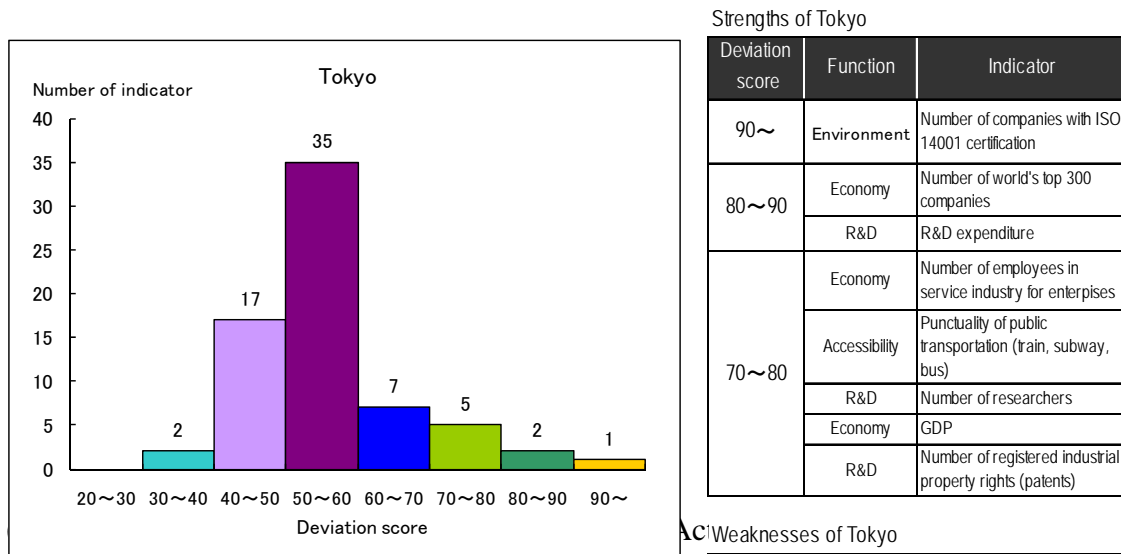


Figure 10.12 Deviation Analysis for the 69 indicators of Tokyo

A deviation analysis of the important factors for actors giving low scores for Tokyo is studied. From a Manager's point of view, #2 Potential for Business Growth, #3 Ease of Business, #4 Business Surroundings, and #5 Pool of Human Resources are the weaknesses among the important factors for Managers. Especially, the regulations and taxation systems of the business environment must be improved to make Tokyo attractive for Managers. (see Figure 10.13)

From a Visitor's point of view, #2 Atmosphere of the City and #3 Destinations for Tourists are the weaknesses among the important factors for Visitors. In order to make Tokyo attractive for Visitors, more resources for tourism must be developed and provided. (see Figure 10.14)

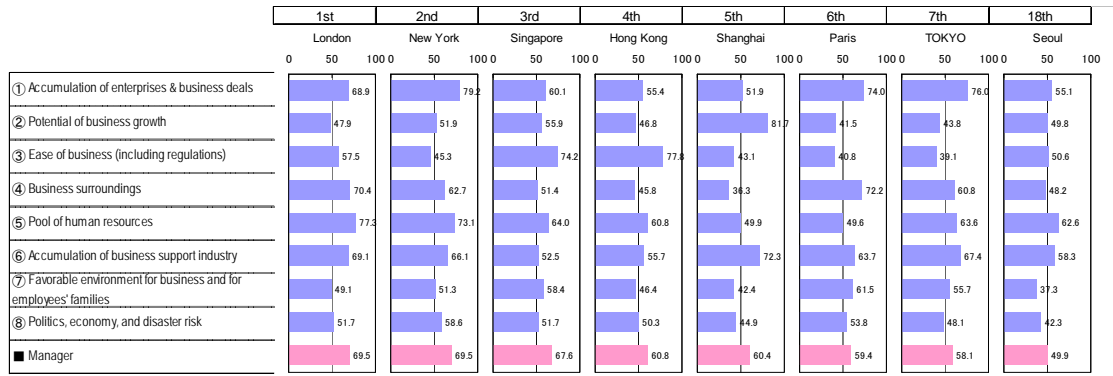


Figure 10.13 Evaluation of Major Cities in Important Factors for Managers

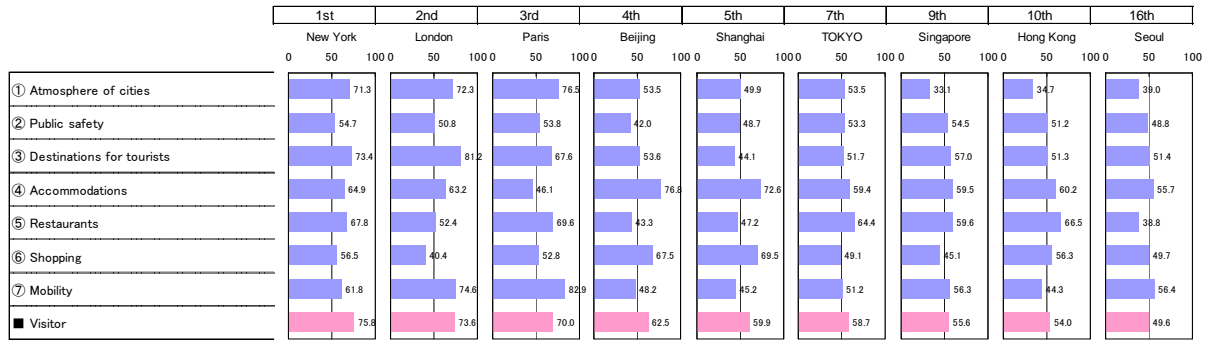


Figure 10.14 Evaluation of Major Cities in Important Factors for Visitors

(9) Scenario Analysis to Overcome the Weaknesses of Tokyo

The ultimate goal for GPCI is not only to create rankings. Utilizing the data on the 69 indicators for the 35 cities, it is possible to simulate the rankings under certain scenarios for any city. Outputs obtained by this scenario analysis will help identify the urban strategy that a particular city needs. Two scenarios for Tokyo are simulated here. (see Figure 10.15)

Scenario 1: Improve international airport systems of Tokyo to the same level as

Singapore.

Achieve a 30-minute Travel Time from Inner City to the International Airport

Increase the Number of Cities with Direct International Flights to the same level as Singapore

Increase the Capacity of International Direct Flights to the same level as Singapore

Increase the Number of Visitors from Abroad to the same level as Singapore

Result: Comprehensive Ranking stays 4th, approaching the level of Paris

Scenario 2: Improve the indicators pulling the Manager score down in the actor-specific ranking.

Make Economic Freedom the same level as London

Make the Corporate Tax Rate the same as London

Increase the Number of Foreigners to the same level as London

Increase the Number of Foreign Students to the same level as London

Increase the Number of Visitors from Abroad to the same level as London

Achieve a 30-minute Travel Time from Inner City to the International Airport

Increase the Number of Cities with Direct International Flights to the same level as London

Increase the Capacity of International Direct Flights to the same level as London

Result: Comprehensive ranking rises from 4th to 1st.

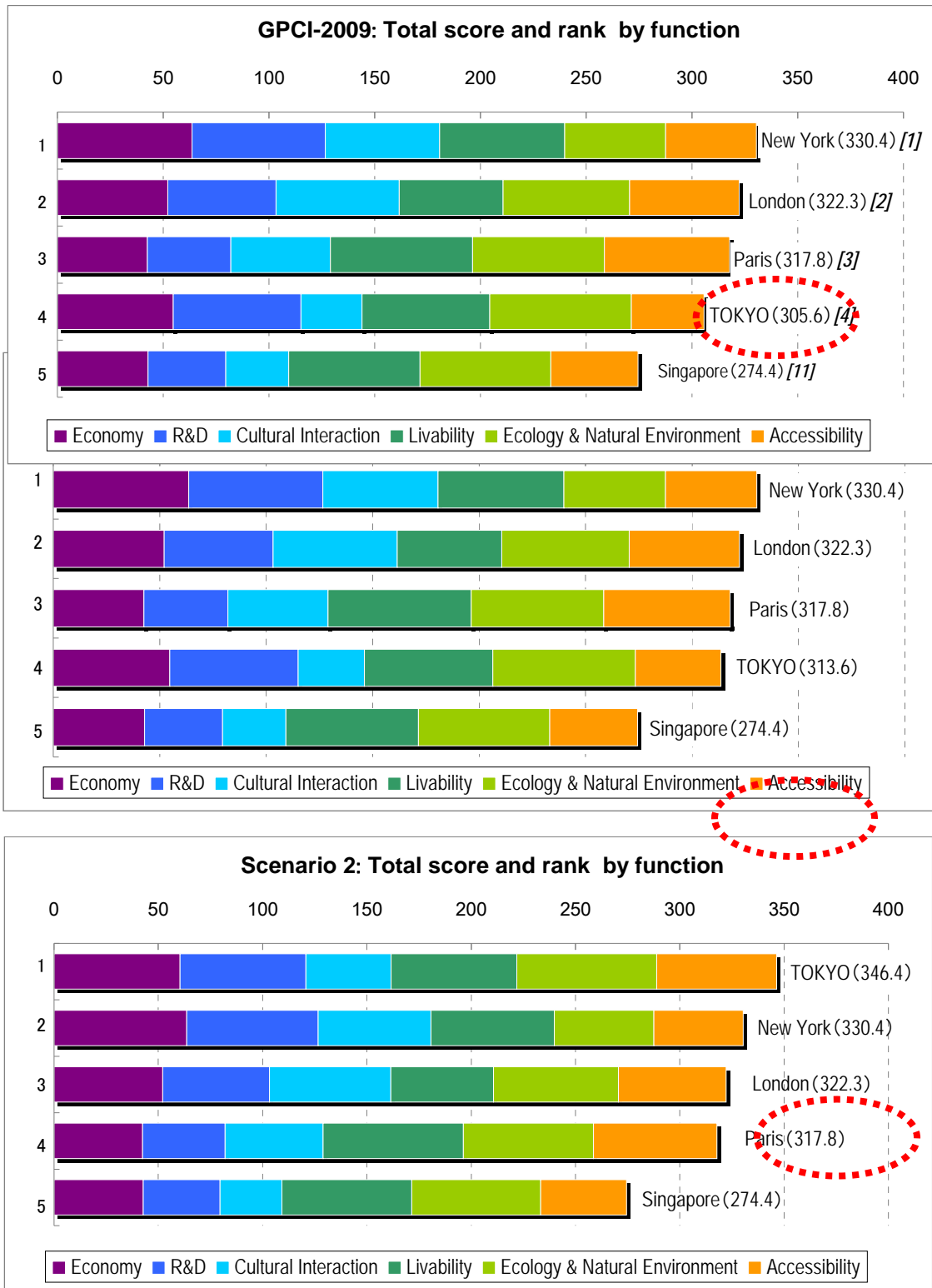


Figure 10.15 Top 5 Ranking and Simulation Results with Scenario 1 and 2

4. Conclusion

Global Power City Index (GPCI), by using sixty nine indicators, shows twelve different types of rankings that describe a variety of characteristics of world top thirty five cities. It makes obvious that every city has both its weakness and strength in six groups of main urban function. Actors in these cities are also influential factors for evaluating the comprehensive power of cities.

In this study of GPCI, the weakness and strength of Tokyo have been clearly captured. The feasible clues to enhance Tokyo's competitiveness were given as two scenarios by the simulation analysis. This methodology would also be applicable to other cities to find out the innovative strategies to enhance their competitiveness in the global age.