JPC

JAPAN POWER CITIES

Profiling Urban Attractiveness

2019

Preface

The Mori Memorial Foundation's Institute for Urban Strategies first published Japan Power Cities—Profiling Urban Attractiveness in 2018. This institute has also been publishing the Global Power City Index for over 11 years since 2008. Happily, the GPCI has solidified its position as a valuable benchmark for evaluating cities and has become a highly-valued tool for foreign policy makers, business people, and all those with an interest in urban studies. On the other hand, numerous Japanese cities have also expressed interest in having an evaluation done similar to the GPCI, and so to respond to those requests, a new evaluation system appropriate for domestic cities was constructed that provides a relative, multi-dimensional analysis of urban power and attractiveness. The results from analyzing each city's strengths and appeal through the JPC have produced large reactions from not only the media, but also local government bodies and economic organizations, among others.

The JPC aims to clarify the strengths and attractiveness—or special characteristics—of cities. Currently, while the tertiary industry in Japan continues to expand in the largest cities, there is concern over the decreasing population and industrial decline occuring throughout smaller regional cities. The questions of what would be ideal for large cities, and how regional cities can recapture their vitality, are becoming urgent challenges. Because of this, objectively evaluating the special characteristics of both large and regional cities, and clarifying their strengths and weaknesses, is indispensable. By carrying out this assessment each year it will be possible to analyze the continuity of these special characteristics.

In this second year of publication, over half of the indicators were updated with new data while definitions for several indicators were changed to increase their significance. In addition, completely new indicators were also added to reflect the changing circumstances faced by cities. It is our hope that the JPC will be utilized as material in strategic plans aiming to improve the vitality of Japan, and become a benchmark in deriving the ideal form of both cities and the nation, while providing solutions for regional revitalization.

Japan Power Cities, Steering Committee, Chairman
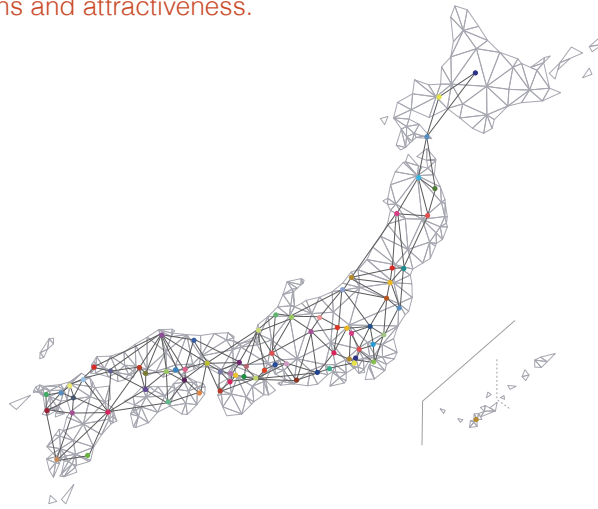**Hiroo Ichikawa**
September, 2019

Japan Power Cities 2019
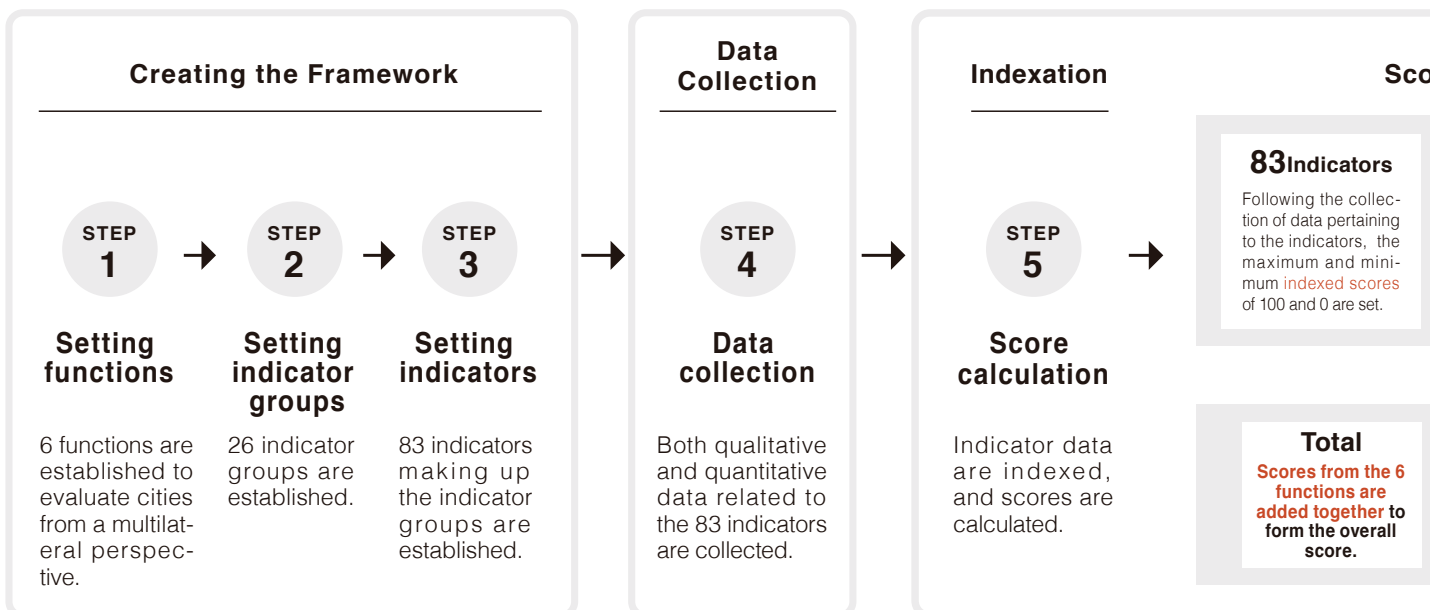
About JPC 2019

Background and Objective

While the world's population is predicted to keep on growing in the years ahead, the population of Japan is expected to shrink rapidly as a result of a declining birth rate and an aging society. In facing such circumstances head on, cities across Japan, in order to maintain their dynamism, must harness their respective characteristics and push ahead with urban development, while maintaining the "magnetism" required to attract people and companies, as well as the "growth potential" that continually demonstrates their urban appeal and strengths.

For this to be achieved, cities need to gain an objective understanding of their own strengths and then formulate and execute an urban strategy plan for the next generation. As part of Japan Power Cities–Profiling Urban Attractiveness, a study was carried out on the major cities of Japan for the purpose of conducting comparative and multi-faceted analyses of city strengths based on quantitative and qualitative data and to shed light on city characteristics such as strengths and attractiveness.

Creating the Framework

Creating the Framework			Data Collection	Indexation	Sco
STEP 1	**STEP 2**	**STEP 3**	**STEP 4**	**STEP 5**	**83**Indicators
Setting functions	**Setting indicator groups**	**Setting indicators**	**Data collection**	**Score calculation**	Following the collection of data pertaining to the indicators, the maximum and minimum indexed scores of 100 and 0 are set.
6 functions are established to evaluate cities from a multilateral perspective.	26 indicator groups are established.	83 indicators making up the indicator groups are established.	Both qualitative and quantitative data related to the 83 indicators are collected.	Indicator data are indexed, and scores are calculated.	**Total** — Scores from the 6 functions are added together to form the overall score.

Research Organization

Steering Committee

Creating the assessment system, as well as performing evaluation & analysis

【Chairman】

Hiroo Ichikawa
Professor Emeritus,
Meiji University

【Members】
**Institute for Urban Strategies,
Mori Memorial Foundation
Mitsubishi Research Institute, Inc.**

Expert Committee

Providing a technical point-of-view as well as advice to the Steering Committee

【Committee Members】

Yasushi Asami
Professor,
University of
Tokyo, Graduate
School of
Engineering

Kazuhiro Ichikawa
President
and Professor,
Japan Lutheran
College

Takayuki Kishii
Specially Appointed
Professor, Nihon
University,
Department of Civil
Engineering

Norihiro Nakai
Director and Professor,
Tokyo Institute of
Technology, School of
Environment and Society

Masayuki Nakagawa
Professor, Nihon
University, College
of Economics

Keisuke Hanaki
Professor, Department of
Information Networking
for Innovation and Design;
Professor Emeritus,
University of Tokyo

Shunya Yoshimi
Professor, University
of Tokyo, Graduate
School of
Interdisciplinary
Information Studies

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ore Calculation Method

26 Indicator Groups

After compiling data for the 83 indicators, an average value is calculated for each of the 26 indicator groups.

6 Functions

The averaged values from the indicator groups are totaled together and used to formulate the function-specific scores.
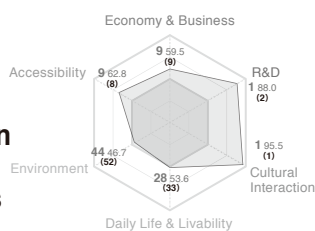
72 Target Cities — Function-specific scores / Total scores

**Tokyo 23-wards** — Function-specific scores / Total scores

Evaluation and Analysis

STEP 6

Evaluation and Analysis

1 Function-specific radar chart

Economy & Business

Accessibility

R&D

Environment

Cultural Interaction

Daily Life & Livability

9 59.5 (9)
9 62.8 (8)
1 88.0 (2)
44 46.7 (52)
28 53.6 (33)
1 95.5 (1)

6 functions are established in order to evaluate cities from a multilateral perspective, and radar charts are created using the deviation and rank of scores derived from those functions.

2 Indicator group radar chart
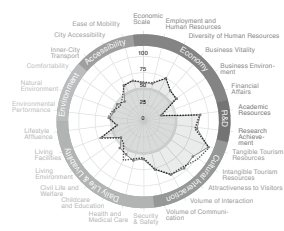
Radar charts are used to clearly indicate the indicator groups in which each city possesses strengths.
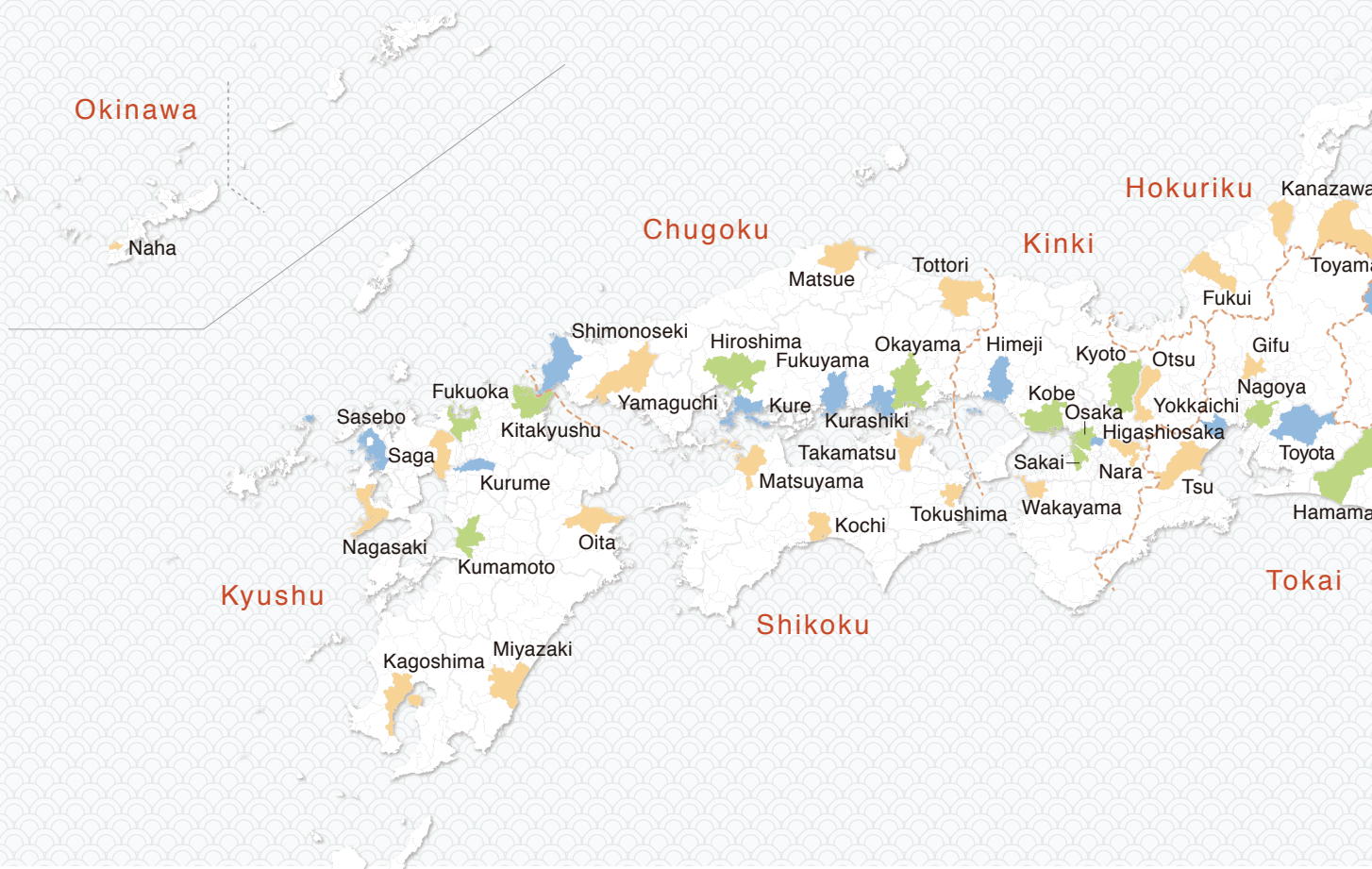
Target Cities

72 major Japanese cities and the 23 wards of Tokyo were included as target cities in this study. Regarding the selection of the target cities, first a list of top 3 cities by population in each prefecture, or administrative region, was created. Next, from that list, 1) Ordinance-designated cities and 2) Prefectural capitals were selected. Finally, in addition to cities from 1) and 2), cities with a population of more than 200,000 and a daytime-nighttime population ratio of more than 1.0 for those located within Japan's big three metropolitan areas, or more than 0.9 for cities elsewhere, were selected.

Top 3 cities by population in each prefecture, or administrative region

		Ordinance-designated cities	Prefectural capitals	Cities with a population of more than 200,000 and a daytime-nighttime population ratio of more than 1.0 for those located within Japan's big three metropolitan areas, or more than 0.9 for cities elsewhere
72 major cities	**Hokkaido**	Sapporo		Hakodate, Asahikawa
	Tohoku	Sendai	Aomori, Morioka, Akita, Yamagata, Fukushima	Hachinohe, Koriyama, Iwaki
	Kanto	Saitama, Chiba, Yokohama, Kawasaki, Sagamihara	Mito, Utsunomiya, Maebashi, Kofu, Nagano	Tsukuba, Takasaki, Ota, Matsumoto
	Tokai	Shizuoka, Hamamatsu, Nagoya	Gifu, Tsu	Fuji, Toyota, Yokkaichi
	Hokuriku	Niigata	Toyama, Kanazawa, Fukui	Nagaoka
	Kinki	Kyoto, Osaka, Sakai, Kobe	Otsu, Nara, Wakayama	Higashiosaka, Himeji
	Chugoku	Okayama, Hiroshima	Tottori, Matsue, Yamaguchi	Kurashiki, Kure, Fukuyama, Shimonoseki
	Shikoku		Matsuyama, Takamatsu, Kochi, Tokushima	
	Kyushu	Kitakyushu, Fukuoka, Kumamoto	Saga, Nagasaki, Oita, Miyazaki, Kagoshima	Kurume, Sasebo
	Okinawa		Naha	
23 wards of Tokyo		Chiyoda, Chuo, Minato, Shinjuku, Bunkyo, Taito, Sumida, Koto, Shinagawa, Meguro, Ota, Setagaya, Shibuya, Nakano, Suginami, Toshima, Kita, Arakawa, Itabashi, Nerima, Adachi, Katsushika, Edogawa		

Target Cities

Hokkaido

Asahikawa

Sapporo

Hakodate

Aomori

Hachinohe

Akita

Morioka

Tohoku

Yamagata
Sendai

Niigata

Nagaoka

Fukushima

Nagano

Koriyama

Maebashi
Utsunomiya

Iwaki

Takasaki

Matsumoto

Ota

Mito

Kofu
Saitama

Tsukuba

Kawasaki

Chiba

Fuji

Yokohama

Sagamihara

Shizuoka

tsu

Kanto

Itabashi

Adachi

Kita

Nerima

Katsushika

Arakawa

Toshima

Nakano
Bunkyo
Taito
Sumida

Suginami
Shinjuku

Edogawa

Chiyoda

Shibuya
Chuo
Koto

Setagaya
Minato

Meguro

Shinagawa

Ota

Tokyo 23 Wards

Ordinance-designated Cities

Prefectural capitals

Cities with a population of more than 200,000 and a daytime-nighttime population ratio of more than 1.0 for those located within Japan's big three metropolitan areas, or more than 0.9 for cities elsewhere

Evaluation System

In Japan Power Cities, 6 functions (Economy & Business, Research & Development, Cultural Interaction, Daily Life & Livability, Environment, and Accessibility) were created to represent the components of cities. Furthermore, 26 indicator groups were established to represent the primary components of those functions, with 83 indicators finally being determined.

Function	Indicator Group		Indicator names
Economy & Business (6 Indicator Groups)	**Economic Scale**	1	Total Value Added
		2	Intra-regional Gross Expenditure
		3	Daytime-Nighttime Population Ratio
	Employment and Human Resources	4	Total Employment
		5	Wage Level
		6	Higher-Education Completion Rate
		7	Intake/Outflow of Young Employees
	Diversity of Human Resources	8	Female Employment Ratio
		9	Foreign Employment Ratio
		10	Elderly Employment Rate
	Business Vitality	11	Ratio of New Businesses
		12	Labor Productivity
		13	Number of Certified Special Zones
	Business Environment	14	Ratio of Employees in Service Industry for Business Enterprises
		15	Total Supply Area of New Offices
		16	Density of Flexible Workplaces
	Financial Affairs	17	Financial Capability Index
		18	Public Account Balance Ratio
		19	Real Debt Expenditure Ratio
		20	Future Burden Ratio
Research & Development (2 Indicator Groups)	**Academic Resources**	21	Ratio of Academic and Development Research Institution Employees
		22	Number of Leading Universities
	Research Achievement	23	Number of Papers Submitted
		24	Number of Leading Firms in Global Niches
Cultural Interaction (5 Indicator Groups)	**Tangible Resources**	25	Number and Rating of Tourist Attractions
		26	Number of Designated Cultural Assets
		27	Active Approach to Scenic Town Planning
	Intangible Resources	28	Number and Rating of Events
		29	Workers in Creative Industries
		30	Opportunities for Cultural, Historical, and Traditional Interaction ⊙
	Attractiveness to Visitors	31	Number of Accomodation Facilities
		32	Number of Luxury Guest Rooms
		33	Number of Event Halls
		34	Multilingual Services at Tourist Information Desks and Hospitals
	Volume of Interaction	35	Weekend Visitor Population
		36	Volume of People Visiting for Tourism or Sightseeing
		37	Number of International Conferences and Exhibitions Held
	Volume of Communication	38	Tourism Promotion Activities
		39	Number of Followers of Local Government SNS Accounts
		40	Level of Attractiveness, Recognition, and Intention to Visit

Function	Indicator Group	Indicator names

Daily Life & Livability

7 Indicator Groups

Security & Safety	41	Recognized Criminal Offenses
	42	Traffic Accident Fatalities
	43	Level of Safety During Disaster
	44	Vacancy Rate
Health and Medical Care	45	Number of Doctors
	46	Number of Hospitals and Clinics
	47	Life Expectancy and Healthy Life Expectancy Rate
Childcare and Education	48	Total Fertility Rate
	49	Availability of Daycare Services
	50	Assistance for Children's Medical Costs
	51	Number of High Schools with High Deviation Scores
Civil Life and Welfare	52	Ease of Integration for Foreign Residents
	53	Number of Elderly Requiring Assistance or Care
	54	Number of Regional Comprehensive Assistance Centers
Living Environment	55	Satisfaction with Living Environment Ⓠ
	56	Volume of New Housing Supply
	57	Size of Residences
	58	Ratio of Barrier-free Homes
Living Facilities	59	Density of Retail Businesses
	60	Density of Restaurants
	61	Density of Convenience Stores
Lifestyle Affluence	62	Disposable Income
	63	Price Level
	64	Cost of Housing

Environment

3 Indicator Groups

Environmental Performance	65	Percentage of Waste Recycled
	66	CO_2 Emissions
	67	Rate of Self-Sufficient Renewable Energy
	68	Number of EV Charging Stations
Natural Environment	69	Satisfaction with Natural Environment Ⓠ
	70	Green Coverage Ratio in Urban Areas
	71	Waterfront Areas
Comfortability	72	Annual Sunshine Hours
	73	Number of Comfortable Temperature / Humidity Days
	74	Air Quality

Accessibility

3 Indicator Groups

Inner-City Transport	75	Convenience of Public Transport Ⓠ
	76	Density of Train Stations and Bus Stops
	77	Frequency of Traffic Congestion
City Accessibility	78	Ease of Access to Airports
	79	Ease of Access to Shinkansen
	80	Number of Interchanges
Ease of Mobility	81	City Compactness
	82	Commuting Time
	83	Ratio of Barrier-free Stations

Ⓠ :Indicators using questionnaires

72 Target Cities **Japan Power Cities 2019 Results and Analysis**

Function-specific, as well as indicator group-specific radar charts were used to analyze the strengths and attractiveness of the top 10 cities based on total score.

1 KYOTO

## A world cultural city further enhancing its cultural interaction power

Kyoto, which has been promoting its "Cultural Capital—Kyoto" initiative since 2017, once again obtained high scores in Cultural Interaction. The city's score increased especially due to strong results for Multilingual Services at Tourist Information Desks and Hospitals as well as Number of Luxury Guest Rooms in Attractiveness to Visitors. In addition, Kyoto displays stable scores in Research & Development, returning the strongest results among all target cities. The city possesses evident strengths in both cultural and intellectual resources, it can be said that Kyoto is a unique city.

Function-specific rank and deviation
(Rank from 2018)
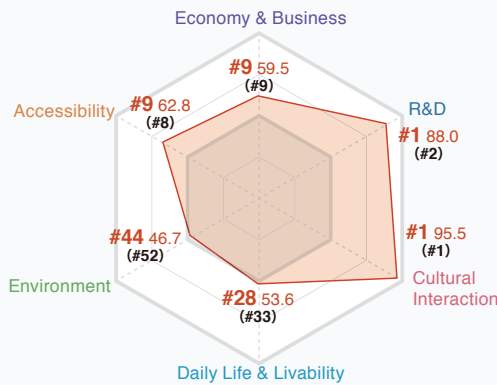
- ☐ Function-specific deviation score
- ☐ 50-point deviation line

Indicator group-specific strengths and weaknesses
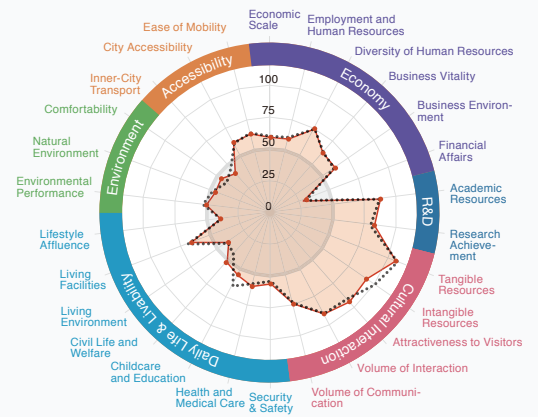
- ☐ 2019 Indicator group-specific deviation score
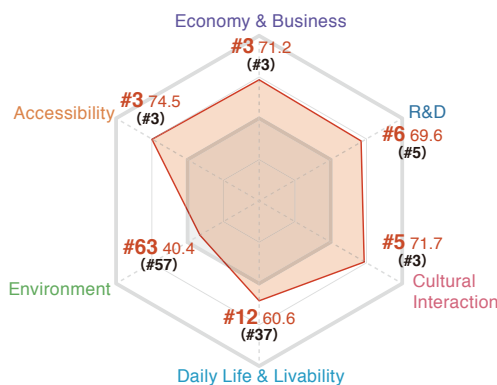- ···· 2018 Indicator group-specific deviation score
- ☐ 50-point deviation line

2 FUKUOKA

A well-balanced city with continued growth

Fukuoka, which aims to become a leading city in Asia, performs well in Economy & Business, much like the previous year, returning stable high scores in Business Vitality and Business Environment. Furthermore, in line with the understanding that Fukuoka is among the most-livable cities in Japan, it raises its scores in 6 of the 7 indicator groups for Daily Life & Livability, earning strong results. Above all, the city holds an exceptional ease of integration for foreign residents, possessing a special appeal for both people and businesses—evident in high scores for Lifestyle Affluence and Security & Safety.

Function-specific rank and deviation
(Rank from 2018)

- ☐ Function-specific deviation score
- ☐ 50-point deviation line

Indicator group-specific strengths and weaknesses
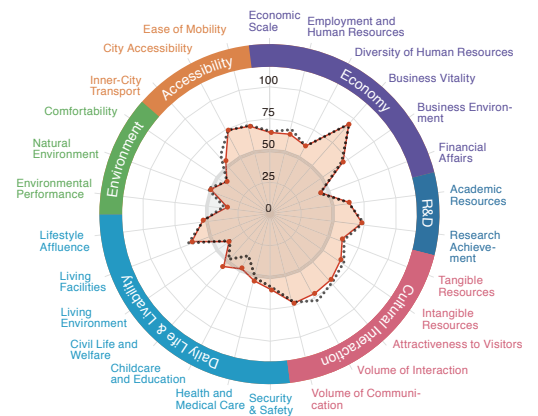
- ☐ 2019 Indicator group-specific deviation score
- ···· 2018 Indicator group-specific deviation score
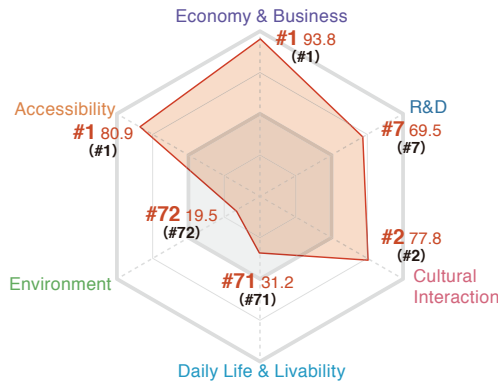- ☐ 50-point deviation line

3 OSAKA

A city centered within the Greater Osaka Metro Area boasting the accumulation and interaction of people and businesses

Continuing from last year, Osaka again achieves exceedingly high scores in Economy & Business, Accessibility, and Cultural Interaction. Regarding Economy, the indicator groups having the largest effect are Economic Scale and Employment & Human Resources. In addition, although there remains the issue of replenishing the supply of lodging facilities due to the recent surge in tourists, Osaka is still far above other target cities in "Attractiveness to Visitors". Being centered within a large metropolitan area, the city supports vigorous interaction between people and businesses through its extensive "City Accessibility" in Accessibility.

Function-specific rank and deviation
(Rank from 2018)

Economy & Business #1 93.8 (#1)
R&D #7 69.5 (#7)
Accessibility #1 80.9 (#1)
#72 19.5 (#72)
#71 31.2 (#71)
Cultural Interaction #2 77.8 (#2)
Environment
Daily Life & Livability

☐ Function-specific deviation score
☐ 50-point deviation line

Indicator group-specific strengths and weaknesses
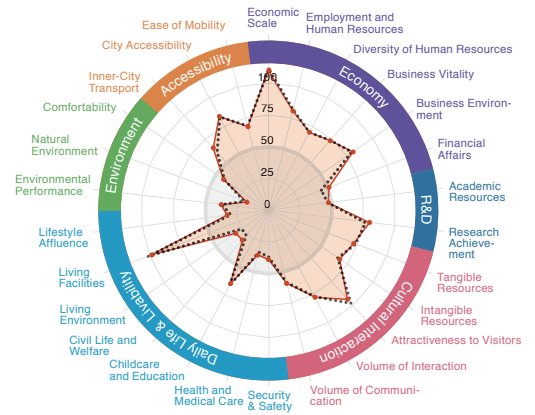
☐ 2019 Indicator group-specific deviation score
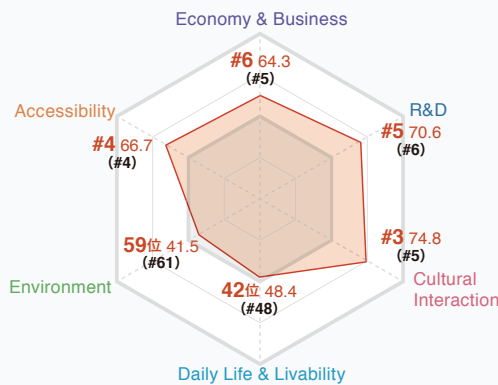···· 2018 Indicator group-specific deviation score
☐ 50-point deviation line

4 YOKOHAMA

## A multi-functional city attracting people through cultural tourism

Yokohama scores highly among 4 functions—Cultural Interaction, Accessibility, Research & Development, Economy & Business—and further receives a stronger evaluation than last year in Daily Life & Livability and Environment. The city's efforts focused on culture and tourism policies are visible in the results, with Yokohama increasing its scores in "Intangible Resources" and "Attractiveness to Visitors" in Cultural Interaction due to high scores in new indicator Workers in Creative Industries and Multilingual Services at Tourist Information Desks and Hospitals.

Function-specific rank and deviation
(Rank from 2018)

Economy & Business #6 64.3 (#5)
R&D #5 70.6 (#6)
Accessibility #4 66.7 (#4)
59位 41.5 (#61)
42位 48.4 (#48)
Cultural Interaction #3 74.8 (#5)
Environment
Daily Life & Livability

☐ Function-specific deviation score
☐ 50-point deviation line

Indicator group-specific strengths and weaknesses
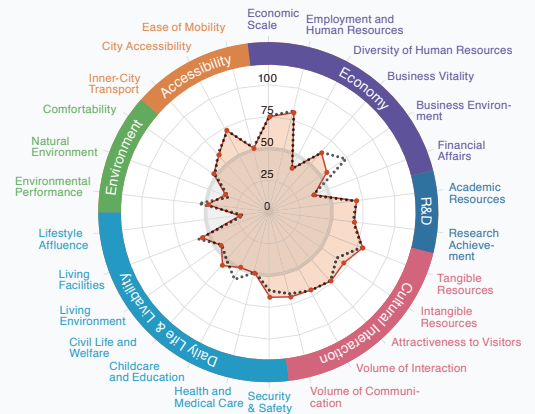
☐ 2019 Indicator group-specific deviation score
···· 2018 Indicator group-specific deviation score
☐ 50-point deviation line

5 NAGOYA

A large city with continuing expansion of transportation convenience and industrial accumulation

Acting as the urban nucleus of the Chubu Region, Nagoya is evaluated highly in Accessibility and Economy & Business. In addition, the city shows its unique strengths related to the concentration of manufacturing industries, with Economy & Business returning scores among the top class of target cities. The overall score for Daily Life & Livability rises due to stable scores in many indicators, as well as a high score for new indicator Ease of Integration for Foreign Residents, indicating Nagoya's appeal in livability.

Function-specific rank and deviation
(Rank from 2018)
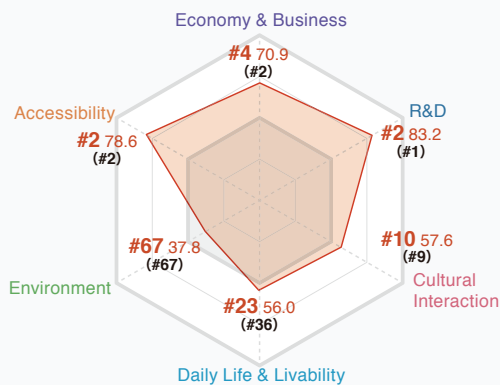
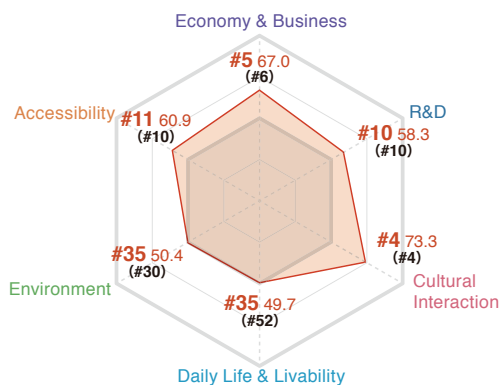Indicator group-specific strengths and weaknesses
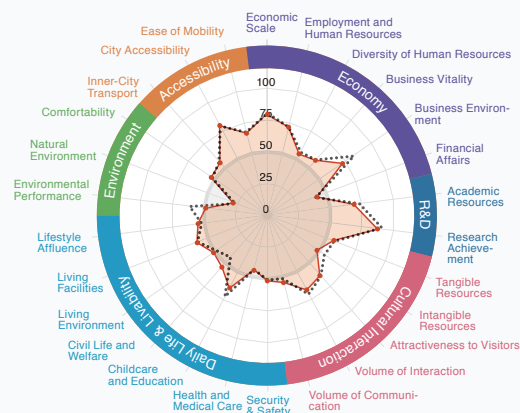
6 KOBE

A balanced city boasting both culture and economic strength

Kobe possesses strengths in Cultural Interaction and Economy & Business, and further takes average or above-average results in Environment and Daily Life & Livability, despite the tendency for cities with large economies to perform poorly in these functions. From this it is understood that Kobe has achieved a balanced urban power. The city also obtains improved results from last year in Cultural Interaction with the indicator groups "Attractiveness to Visitors" and "Volume of Interaction" . With comparatively strong results in the indicators Satisfaction with Natural Environment and Green Coverage Ratio in Urban Areas for "Natural Environment" , while being considered a large city, it can be said that Kobe combines both economic and cultural appeal with an attractive natural environment.

Function-specific rank and deviation
(Rank from 2018)
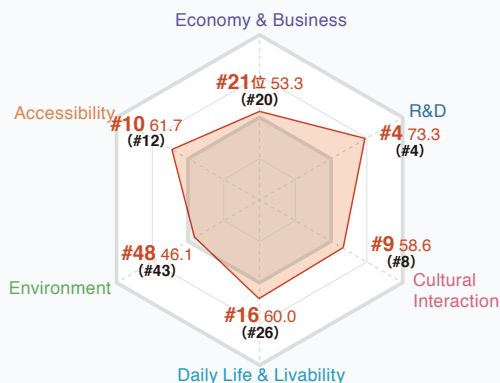
Indicator group-specific strengths and weaknesses
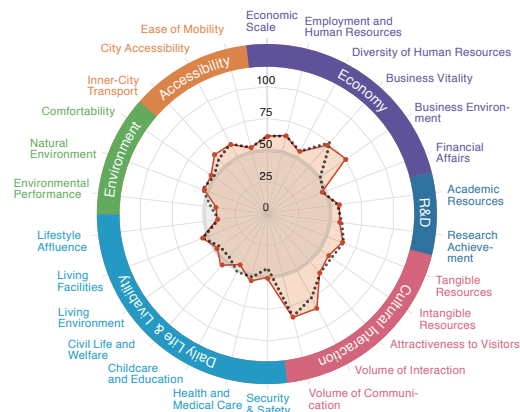

7 SENDAI

A balanced "city of trees" boasting stable city functions

Sendai is a central city in the Tohoku region possessing stable city functions and returns exceedingly high scores in Research & Development, Cultural Interaction, and Accessibility. Among those, the city especially shows excellent Accessibility with both "Inner-city Transport" and "City Accessibility" , indicating that in addition to a high-level of inner-city transport convenience, Sendai also boasts exceptional transportation links between major cities as well. In Daily Life & Livability, the city displays huge leaps with all indicator groups returning increased scores compared with last year. In addition to showing particular strength in "Security & Safety" with Level of Safety During Disasters, Sendai moves upward in "Civil Life & Welfare" with Ease of Integration for Foreign Residents.

Function-specific rank and deviation
(Rank from 2018)

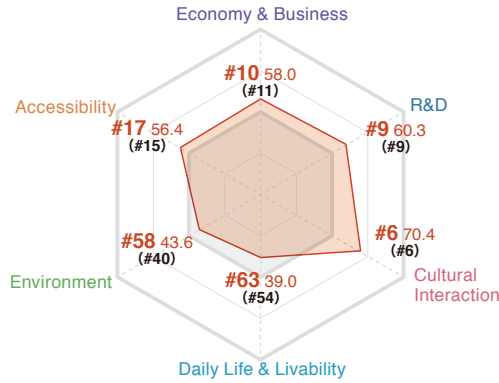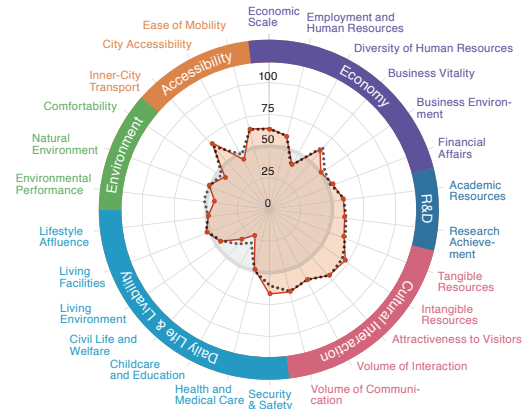Indicator group-specific strengths and weaknesses
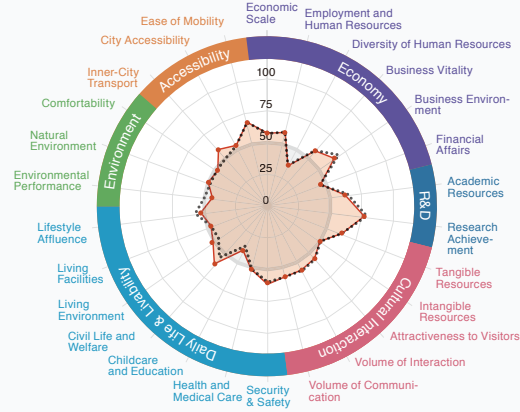
8 SAPPORO

A large city replete with tourist resources and substantial transportation infrastructure

Attracting large numbers of both domestic and overseas tourists, Sapporo again scores highly in Cultural Interaction, increasing its score in "Attractiveness to Visitors" and showing steady strengths in Number and Rating of Events as well as Level of Attractiveness, Recognition, and Intention to Visit. In Daily Life & Livability's "Security & Safety", the city takes excellent results in new indicator Level of Safety During Disasters while likewise showing increases in score for other indicators. In Accessibility, Sapporo's substantial inner-city transportation is evident from the lack of traffic congestion and abundant stations and bus stops in the city. Moreover, as indicators based on resident surveys also return high scores, it can be said that not only tourists but also residents find Sapporo to be a city with exceptional transport convenience.

Function-specific rank and deviation
(Rank from 2018)

- Economy & Business #10 58.0 (#11)
- R&D #9 60.3 (#9)
- Cultural Interaction #6 70.4 (#6)
- Daily Life & Livability #63 39.0 (#54)
- Environment #58 43.6 (#40)
- Accessibility #17 56.4 (#15)

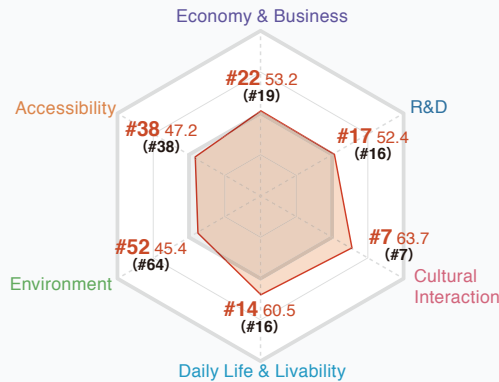### Indicator group-specific strengths and weaknesses
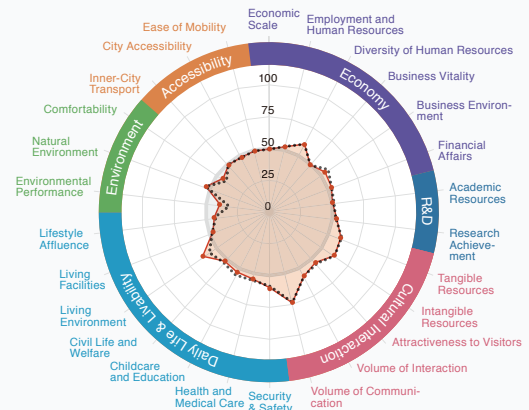
9 KANAZAWA

A feudal castle town with cultural resources and livability

Taking advantage of the opportunity presented by the opening of the Hokuriku Shinkansen in 2015 to aim to be an "urban focal point for global interaction", the feudal castle town, Kanazawa, exhibits a characteristic historical and traditional appeal within Cultural Interaction. The city's "Intangible Resources" excel thanks to abundant Opportunities for Cultural, Historical, and Traditional Interaction and a prominent degree of domestic recognition. Kanazawa also receives excellent results in Daily Life & Livability, especially with "Living Environment" which is evaluated highly. In Environment, where the city showed improvements over last year, scores for CO_2 Emissions, Satisfaction with Natural Environment, and Air Quality are high, displaying the results of environmental conservation efforts undertaken by the "tree-filled city" of Kanazawa.

Function-specific rank and deviation
(Rank from 2018)

- Economy & Business #22 53.2 (#19)
- R&D #17 52.4 (#16)
- Cultural Interaction #7 63.7 (#7)
- Daily Life & Livability #14 60.5 (#16)
- Environment #52 45.4 (#64)
- Accessibility #38 47.2 (#38)

Indicator group-specific strengths and weaknesses

10 MATSUMOTO

A mountain-city blending beautiful natural scenery with a rich living environment

Setting forth plans to be a city promoting "Live beautifully. Extend a healthy lifespan", Matsumoto returns excellent results in Environment and Daily Life & Livability. The city's strengths lie especially in Environment's "Natural Environment" where indicators Satisfaction with Natural Environment and Green Coverage Ratio in Urban Areas are evaluated highly. Within Daily Life & Livability's "Health and Medical Care", the city's Life Expectancy and Healthy Life Expectancy Rate and Number of Doctors garner strong scores. Furthermore, on top of Matsumoto's abundant natural environment and exceptional living environment, it can be inferred by high results in Economy's Elderly Employment Rate that people are healthy and participating actively over a long span of time.

Function-specific rank and deviation
(Rank from 2018)

- Economy & Business #13 57.2 (#12)
- R&D #42 45.5 (#42)
- Cultural Interaction #15 54.5 (#21)
- Daily Life & Livability #2 70.9 (#2)
- Environment #1 68.8 (#2)
- Accessibility #67 39.8 (#66)

Indicator group-specific strengths and weaknesses

Function-Specific Scores

Economy & Business

Rank	City	Score
1	Osaka	258.5
2	Toyota	192.0
3	Fukuoka	190.9
4	Nagoya	190.2
5	Kobe	178.3
6	Yokohama	170.5
7	Gifu	160.7
8	Hamamatsu	157.2
9	Kyoto	155.9
10	Sapporo	151.4
11	Okayama	150.6
12	Fukuyama	149.8
13	Matsumoto	149.2
14	Kawasaki	149.0
15	Tsukuba	146.7
16	Saitama	143.5
17	Sagamihara	141.4
18	Nagano	139.3
19	Otsu	139.0
20	Higashi Osaka	137.6
21	Sendai	137.6
22	Kanazawa	137.3
23	Himeji	136.2
24	Shizuoka	135.6
25	Saga	135.4
26	Kurume	134.8
27	Fuji	134.4
28	Takamatsu	133.9
29	Tsu	133.6
30	Takasaki	132.0
31 ~ 72	Hakodate,Asahikawa,Aomori, Hachinohe,Morioka,Akita,Yamagata, Fukushima,Koriyama,Iwaki,Mito, Utsunomiya,Maebashi,Ohta,Chiba, Niigata,Nagaoka,Toyama,Fukui, Kofu,Yokkaichi,Sakai,Nara, Wakayama,Tottori,Matsue, Kurashiki,Hiroshima,Kure, Shimonoseki,Yamaguchi,Tokushima, Matsuyama,Kochi,Kitakyusyu, Nagasaki,Sasebo,Kumamoto,Oita, Miyazaki,Kagoshima,Naha (Listed by city code)	

R & D

Rank	City	Score
1	Kyoto	102.7
2	Nagoya	92.2
3	Tsukuba	91.3
4	Sendai	70.3
5	Yokohama	64.2
6	Fukuoka	62.1
7	Osaka	61.8
8	Hiroshima	44.1
9	Sapporo	41.5
10	Kobe	37.0
11	Kitakyusyu	34.5
12	Chiba	32.4
13	Okayama	27.1
14	Utsunomiya	25.9
15	Hakodate	25.2
16	Niigata	25.1
17	Kanazawa	23.8
18	Hamamatsu	22.4
19	Kawasaki	20.8
20	Saitama	19.3
21	Sagamihara	17.9
22	Shizuoka	17.7
23	Akita	17.4
24	Sakai	15.4
25	Kumamoto	15.3
26	Nagasaki	14.3
27	Nagaoka	13.4
28	Kagoshima	12.2
29	Takamatsu	11.8
30	Otsu	11.7
31 ~ 72	Asahikawa,Aomori,Hachinohe, Morioka,Yamagata,Fukushima, Koriyama,Iwaki,Mito,Maebashi, Takasaki,Ohta,Toyama,Fukui,Kofu, Nagano,Matsumoto,Gifu,Fuji,Toyota, Tsu,Yokkaichi,Higashi Osaka, Himeji,Nara,Wakayama,Tottori, Matsue,Kurashiki,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Matsuyama,Kochi,Kurume,Saga, Sasebo,Oita,Miyazaki,Naha (Listed by city code)	

Cultural Interaction

Rank	City	Score
1	Kyoto	372.5
2	Osaka	268.4
3	Yokohama	250.8
4	Kobe	241.8
5	Fukuoka	232.0
6	Sapporo	224.9
7	Kanazawa	185.0
8	Hakodate	159.3
9	Sendai	155.2
10	Nagoya	149.6
11	Nagasaki	145.3
12	Nara	144.1
13	Hiroshima	141.9
14	Naha	141.8
15	Matsumoto	131.4
16	Kitakyusyu	123.6
17	Kumamoto	119.3
18	Hamamatsu	117.0
19	Himeji	116.1
20	Shizuoka	115.8
21	Kurashiki	115.2
22	Takamatsu	107.6
23	Matsue	104.9
24	Sasebo	103.7
25	Matsuyama	103.6
26	Nagano	100.4
27	Miyazaki	99.7
28	Mito	99.4
29	Chiba	98.8
30	Kagoshima	98.3
31 ~ 72	Asahikawa,Aomori,Hachinohe, Morioka,Akita,Yamagata,Fukushima, Koriyama,Iwaki,Tsukuba, Utsunomiya,Maebashi,Takasaki, Ohta,Saitama,Kawasaki, Sagamihara,Niigata,Nagaoka, Toyama,Fukui,Kofu,Gifu,Fuji,Toyota, Tsu,Yokkaichi,Otsu,Sakai, Higashi Osaka,Wakayama,Tottori, Okayama,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Kochi,Kurume,Saga,Oita (Listed by city code)	

Daily Life & Livability

Rank	City	Score
1	Toyota	374.1
2	Matsumoto	371.6
3	Nagano	363.8
4	Maebashi	355.6
5	Yamagata	353.0
6	Takasaki	348.2
7	Tottori	346.9
8	Kofu	345.6
9	Hamamatsu	345.2
10	Toyama	345.0
11	Kumamoto	342.2
12	Fukuoka	342.0
13	Fukui	341.7
14	Kanazawa	341.7
15	Nara	340.6
16	Sendai	340.3
17	Tsukuba	337.5
18	Saga	336.9
19	Kurume	336.5
20	Saitama	334.0
21	Shizuoka	331.0
22	Kagoshima	330.6
23	Nagoya	329.0
24	Yokkaichi	326.4
25	Gifu	325.1
26	Tsu	323.2
27	Fukushima	323.1
28	Kyoto	322.0
29	Ohta	321.4
30	Hiroshima	316.6
31 ~ 72	Sapporo,Hakodate,Asahikawa, Aomori,Hachinohe,Morioka,Akita, Koriyama,Iwaki,Mito,Utsunomiya, Chiba,Yokohama,Kawasaki, Sagamihara,Niigata,Nagaoka,Fuji, Otsu,Osaka,Sakai,Higashi Osaka, Kobe,Himeji,Wakayama,Matsue, Okayama,Kurashiki,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Takamatsu,Matsuyama,Kochi, Kitakyusyu,Nagasaki,Sasebo,Oita, Miyazaki,Naha (Listed by city code)	

Environment

Rank	City	Score
1	Matsumoto	185.3
2	Kochi	183.7
3	Miyazaki	183.4
4	Hamamatsu	182.7
5	Tsu	180.9
6	Iwaki	180.2
7	Kure	179.8
8	Matsue	177.5
9	Maebashi	175.0
10	Toyota	174.4
11	Yamaguchi	173.0
12	Shimonoseki	170.5
13	Saga	170.2
14	Sasebo	168.6
15	Matsuyama	166.7
16	Tottori	164.3
17	Tsukuba	163.5
18	Takamatsu	162.4
19	Tokushima	160.8
20	Toyama	160.3
21	Takasaki	160.0
22	Kofu	158.1
23	Gifu	158.1
24	Kagoshima	158.1
25	Shizuoka	158.0
26	Nagasaki	156.5
27	Nagano	156.4
28	Himeji	156.2
29	Oita	155.4
30	Otsu	155.0
31 ~ 72	Sapporo,Hakodate,Asahikawa, Aomori,Hachinohe,Morioka,Sendai, Akita,Yamagata,Fukushima, Koriyama,Mito,Utsunomiya,Ohta, Saitama,Chiba,Yokohama, Kawasaki,Sagamihara,Niigata, Nagaoka,Kanazawa,Fukui,Fuji, Nagoya,Yokkaichi,Kyoto,Osaka, Sakai,Higashi Osaka,Kobe,Nara, Wakayama,Okayama,Kurashiki, Hiroshima,Fukuyama,Kitakyusyu, Fukuoka,Kurume,Kumamoto,Naha (Listed by city code)	

Accessibility

Rank	City	Score
1	Osaka	204.8
2	Nagoya	198.9
3	Fukuoka	188.8
4	Yokohama	169.3
5	Kawasaki	168.5
6	Kitakyusyu	162.6
7	Higashi Osaka	160.2
8	Naha	159.9
9	Kyoto	159.5
10	Sendai	156.8
11	Kobe	154.9
12	Saitama	152.5
13	Sakai	152.4
14	Chiba	152.3
15	Kagoshima	146.3
16	Gifu	144.9
17	Sapporo	143.7
18	Sagamihara	141.9
19	Nara	141.9
20	Hiroshima	141.6
21	Toyota	140.1
22	Yokkaichi	139.9
23	Otsu	138.5
24	Shizuoka	138.4
25	Hakodate	136.8
26	Kurume	133.8
27	Nagasaki	129.2
28	Maebashi	127.8
29	Niigata	124.8
30	Tsukuba	123.9
31 ~ 72	Asahikawa,Aomori,Hachinohe, Morioka,Akita,Yamagata,Fukushima, Koriyama,Iwaki,Mito,Utsunomiya, Takasaki,Ohta,Nagaoka,Toyama, Kanazawa,Fukui,Kofu,Nagano, Matsumoto,Hamamatsu,Fuji,Tsu, Himeji,Wakayama,Tottori,Matsue, Okayama,Kurashiki,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Takamatsu,Matsuyama,Kochi,Saga, Sasebo,Kumamoto,Oita,Miyazaki (Listed by city code)	

Total Score

Rank	City	Score
1	Kyoto	1,258.0
2	Fukuoka	1,149.8
3	Osaka	1,147.9
4	Yokohama	1,098.0
5	Nagoya	1,089.0
6	Kobe	1,074.9
7	Sendai	1,004.5
8	Sapporo	981.6
9	Kanazawa	951.5
10	Matsumoto	948.2
11	Tsukuba	947.2
12	Toyota	935.8
13	Hamamatsu	935.3
14	Hiroshima	921.5
15	Shizuoka	896.5
16	Nara	893.0
17	Kitakyusyu	883.4
18	Nagano	876.0
19	Kagoshima	875.9
20	Gifu	875.2
21	Saitama	872.2
22	Kumamoto	867.1
23	Okayama	850.2
24	Nagasaki	846.6
25	Hakodate	840.9
26	Maebashi	840.6
27	Toyama	839.3
28	Otsu	839.2
29	Takamatsu	836.7
30	Chiba	835.1
31 ~ 72	Asahikawa,Aomori,Hachinohe, Morioka, Akita,Yamagata, Fukushima,Koriyama,Iwaki,Mito,Utsunomiya,Takasaki, Ohta,Kawasaki,Sagamihara,Niigata,Nagaoka,Fukui,Kofu, Fuji,Tsu,Yokkaichi,Sakai,Higashi Osaka,Himeji,Wakayama, Tottori,Matsue,Kurashiki,Kure,Fukuyama,Shimonoseki, Yamaguchi,Tokushima,Matsuyama,Kochi,Kurume,Saga, Sasebo,Oita,Miyazaki,Naha (Listed by city code)	

72 Target Cities-Function-Specific Score

Actor-Specific Scores

In order to evaluate the function-specific characteristics of cities from the viewpoint of 'people', 6 types of actors (Single, Family, Seniors, Executive, Employee, Tourist) were established for this report. To calculate the actor-specific score, first the individual urban needs are determined for each actor, after which the indicators associated with those needs are selected and values are averaged to produce a score.

Single
Number of Indicators 20/83

Rank	City	Score
1	Fukuoka	53.4
2	Nagoya	52.2
3	Kumamoto	48.6
4	Kagoshima	48.5
5	Osaka	48.5
6	Kitakyusyu	47.2
7	Kyoto	47.2
8	Toyota	47.0
9	Nara	46.9
10	Hiroshima	46.8
11	Shizuoka	46.7
12	Matsumoto	46.7
13	Kobe	46.7
14	Kurume	46.4
15	Hamamatsu	46.4
16	Gifu	46.2
17	Tsu	46.1
18	Kofu	46.0
19	Yokohama	45.4
20	Takasaki	45.4
21	Saga	45.1
22	Sendai	45.0
23	Naha	44.9
24	Maebashi	44.5
25	Matsuyama	44.4
26	Okayama	44.2
27	Miyazaki	44.1
28	Kawasaki	43.9
29	Takamatsu	43.5
30	Yokkaichi	43.3
31 ~ 72	Sapporo,Hakodate,Asahikawa,Aomori, Hachinohe,Morioka,Akita,Yamagata, Fukushima,Koriyama,Iwaki,Mito,Tsukuba, Utsunomiya,Ohta,Saitama,Chiba, Sagamihara,Niigata,Nagaoka,Toyama, Kanazawa,Fukui,Nagano,Fuji,Otsu,Sakai, Higashi Osaka,Himeji,Wakayama,Tottori, Matsue,Kurashiki,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Kochi,Nagasaki,Sasebo,Oita	

(Listed by city code)

Family
Number of Indicators 38/83

Rank	City	Score
1	Fukuoka	53.1
2	Kagoshima	51.5
3	Maebashi	51.2
4	Nagoya	50.6
5	Matsumoto	50.4
6	Toyota	50.3
7	Hamamatsu	49.9
8	Gifu	49.8
9	Kurume	49.6
10	Toyama	49.5
11	Sendai	49.5
12	Tsukuba	49.4
13	Kyoto	49.3
14	Kitakyusyu	49.1
15	Nara	49.0
16	Tsu	48.8
17	Shizuoka	48.6
18	Takasaki	48.5
19	Kumamoto	48.4
20	Kobe	48.2
21	Kanazawa	48.1
22	Yokohama	47.7
23	Kofu	47.6
24	Saga	47.6
25	Nagano	47.6
26	Takamatsu	47.6
27	Nagasaki	47.2
28	Matsue	47.0
29	Tottori	47.0
30	Matsuyama	46.7
31 ~ 72	Sapporo,Hakodate,Asahikawa,Aomori, Hachinohe,Morioka,Akita,Yamagata, Fukushima,Koriyama,Iwaki,Mito, Utsunomiya,Ohta,Saitama,Chiba, Kawasaki,Sagamihara,Niigata,Nagaoka, Fukui,Fuji,Yokkaichi,Otsu,Osaka,Sakai, Higashi Osaka,Himeji,Wakayama,Okayama, Kurashiki,Hiroshima,Kure,Fukuyama, Shimonoseki,Yamaguchi,Tokushima, Kochi,Sasebo,Oita,Miyazaki,Naha	

(Listed by city code)

Seniors
Number of Indicators 34/83

Rank	City	Score
1	Matsumoto	53.3
2	Sendai	53.1
3	Fukuoka	52.9
4	Toyota	51.6
5	Maebashi	50.8
6	Hamamatsu	50.5
7	Shizuoka	50.2
8	Nagano	49.8
9	Kagoshima	49.8
10	Hiroshima	49.3
11	Miyazaki	49.3
12	Kobe	49.2
13	Kyoto	49.2
14	Takasaki	49.1
15	Kanazawa	49.0
16	Tsukuba	48.9
17	Nagasaki	48.9
18	Toyama	48.9
19	Kumamoto	48.9
20	Nara	48.6
21	Yokohama	48.4
22	Gifu	48.2
23	Sapporo	48.0
24	Matsue	47.9
25	Nagoya	47.9
26	Kurume	47.9
27	Saga	47.8
28	Kofu	47.6
29	Tsu	47.5
30	Kitakyusyu	47.3
31 ~ 72	Hakodate,Asahikawa,Aomori,Hachinohe, Morioka,Akita,Yamagata,Fukushima, Koriyama,Iwaki,Mito,Utsunomiya,Ohta, Saitama,Chiba,Kawasaki,Sagamihara, Niigata,Nagaoka,Fukui,Fuji,Yokkaichi, Otsu,Osaka,Sakai,Higashi Osaka,Himeji, Wakayama,Tottori,Okayama,Kurashiki, Kure,Fukuyama,Shimonoseki,Yamaguchi, Tokushima,Takamatsu,Matsuyama,Kochi, Sasebo,Oita,Naha	

(Listed by city code)

Executive

Number of Indicators 34/83

Rank	City	Score
1	Osaka	52.1
2	Fukuoka	40.6
3	Nagoya	40.4
4	Kyoto	38.9
5	Yokohama	36.8
6	Kobe	35.8
7	Sapporo	33.0
8	Toyota	32.3
9	Sendai	30.9
10	Hamamatsu	28.5
11	Kawasaki	28.5
12	Hiroshima	28.4
13	Saitama	27.5
14	Gifu	27.4
15	Okayama	27.4
16	Kanazawa	27.2
17	Tsukuba	27.0
18	Otsu	26.9
19	Matsumoto	26.8
20	Fukuyama	26.5
21	Shizuoka	26.1
22	Sagamihara	25.9
23	Kagoshima	25.6
24	Kitakyusyu	25.6
25	Tsu	25.0
26	Yokkaichi	24.8
27	Higashi Osaka	24.7
28	Himeji	24.7
29	Utsunomiya	24.6
30	Takamatsu	24.5
31 ~ 72	Hakodate,Asahikawa,Aomori,Hachinohe, Morioka,Akita,Yamagata,Fukushima, Koriyama,Iwaki,Mito,Maebashi,Takasaki, Ohta,Chiba,Niigata,Nagaoka,Toyama, Fukui,Kofu,Nagano,Fuji,Sakai,Nara, Wakayama,Tottori,Matsue,Kurashiki,Kure, Shimonoseki,Yamaguchi,Tokushima, Matsuyama,Kochi,Kurume,Saga,Nagasaki, Sasebo,Kumamoto,Oita,Miyazaki,Naha	

(Listed by city code)

Employee

Number of Indicators 17/83

Rank	City	Score
1	Osaka	51.5
2	Nagoya	41.8
3	Fukuoka	38.9
4	Kyoto	37.3
5	Kobe	33.8
6	Yokohama	33.5
7	Gifu	33.3
8	Kawasaki	32.8
9	Kurume	32.5
10	Hiroshima	32.4
11	Kagoshima	32.0
12	Tsu	31.8
13	Kitakyusyu	31.4
14	Toyota	31.2
15	Higashi Osaka	30.9
16	Saga	30.1
17	Toyama	30.0
18	Shimonoseki	29.8
19	Fukui	29.7
20	Okayama	29.6
21	Kanazawa	29.4
22	Kumamoto	29.4
23	Hamamatsu	29.0
24	Takasaki	28.7
25	Yokkaichi	28.7
26	Nagasaki	28.7
27	Kochi	28.5
28	Sapporo	28.4
29	Shizuoka	28.4
30	Matsumoto	28.4
31 ~ 72	Hakodate,Asahikawa,Aomori,Hachinohe, Morioka,Sendai,Akita,Yamagata, Fukushima,Koriyama,Iwaki,Mito,Tsukuba, Utsunomiya,Maebashi,Ohta,Saitama,Chiba, Sagamihara,Niigata,Nagaoka,Kofu,Nagano, Fuji,Otsu,Sakai,Himeji,Nara,Wakayama, Tottori,Matsue,Kurashiki,Kure,Fukuyama, Yamaguchi,Tokushima,Takamatsu, Matsuyama,Sasebo,Oita,Miyazaki,Naha	

(Listed by city code)

# Tourist

Number of Indicators 32/83

Rank	City	Score
1	Kyoto	59.5
2	Osaka	49.6
3	Yokohama	49.5
4	Fukuoka	47.3
5	Kobe	47.2
6	Sapporo	42.7
7	Nagoya	38.6
8	Kanazawa	37.2
9	Sendai	37.0
10	Nara	36.9
11	Hiroshima	36.6
12	Hakodate	36.3
13	Nagasaki	36.2
14	Naha	35.6
15	Hamamatsu	33.2
16	Kitakyusyu	33.1
17	Shizuoka	32.8
18	Matsumoto	32.7
19	Kagoshima	32.2
20	Chiba	31.7
21	Matsue	31.5
22	Otsu	31.2
23	Kumamoto	31.1
24	Himeji	30.9
25	Takamatsu	30.9
26	Sasebo	30.7
27	Kurashiki	30.6
28	Saitama	30.3
29	Miyazaki	30.0
30	Tsukuba	29.7
31 ~ 72	Asahikawa,Aomori,Hachinohe,Morioka, Akita,Yamagata,Fukushima,Koriyama, Iwaki,Mito,Utsunomiya,Maebashi,Takasaki, Ohta,Kawasaki,Sagamihara,Niigata, Nagaoka,Toyama,Fukui,Kofu,Nagano,Gifu, Fuji,Toyota,Tsu,Yokkaichi,Sakai, Higashi Osaka,Wakayama,Tottori, Okayama,Kure,Fukuyama,Shimonoseki, Yamaguchi,Tokushima,Matsuyama,Kochi, Kurume,Saga,Oita	

(Listed by city code)

72 Target Cities-Actor-Specific Scores

Japan Power Cities 2019　Results and Analysis

Function-specific, as well as indicator group-specific radar charts were used to analyze the strengths and attractiveness of the top 3 cities based on total score.
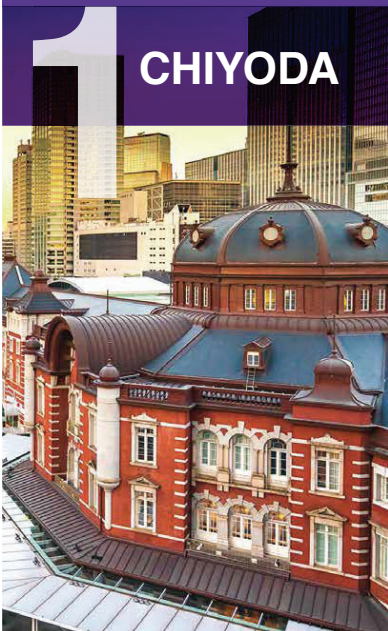
1 CHIYODA

Tokyo's central ward which excels across multiple areas

With the three branches of government located in the vicinity and prominent historical and cultural features from the Edo Period preserved, Chiyoda displays strengths in Economy & Business, Daily Life & Livability, Cultural Interaction, and Accessibility. Scores have risen over last year particularly in Daily Life & Livability's "Health and Medical Care" and "Living Environment" which both receive high marks, showing the effects of the city's push to be a livable place for everyone from children to the elderly. In addition, results in Environment rose markedly in line with residents' satisfaction with the natural environment.

Function-specific rank and deviation
(Rank from 2018)
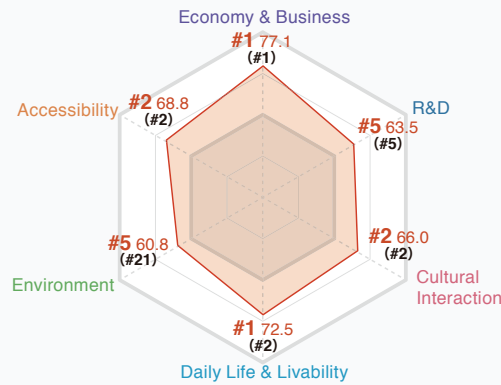
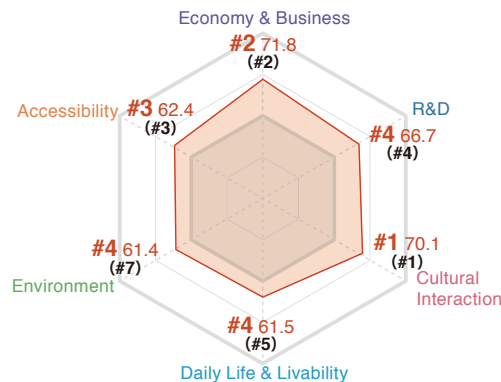Indicator group-specific strengths and weaknesses
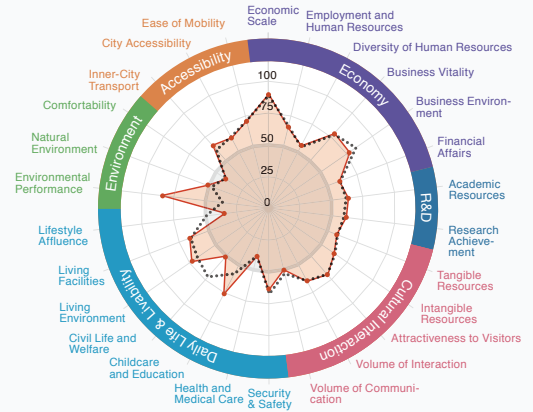

2 MINATO

A balanced city where culture and the economy continue to rise to the top

Minato continues from last year to retain a balance of high scores across all 6 functions. The city has solidified strengths in Economy & Business as well as Cultural Interaction, where scores in almost all indicator groups rose. Moreover, results for the newly added indicator Workers in Creative Industries were highest among all target cities. Scores in Daily Life & Livability's "Civil Life and Welfare" and "Childcare and Education", as well as Environment's "Environmental Performance" have all increased this year, a sign of the city's continued evolution into a comprehensively balanced city with the target of "Minato born, Minato raised".

Function-specific rank and deviation
(Rank from 2018)
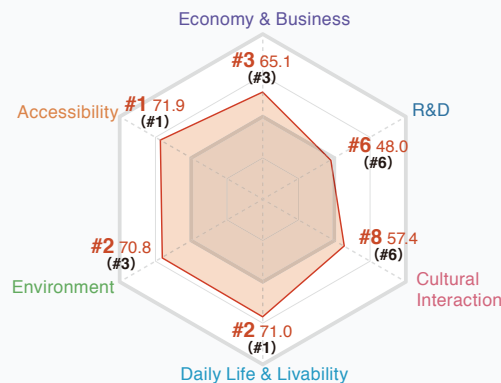
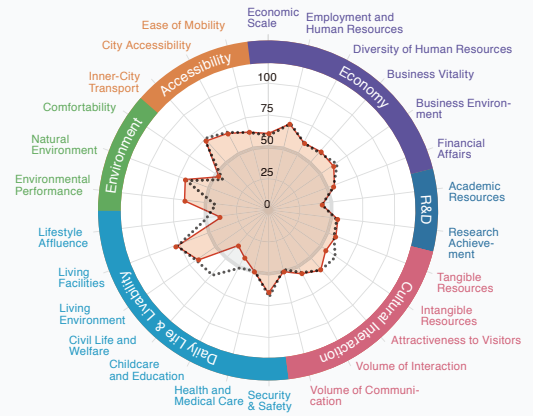Indicator group-specific strengths and weaknesses
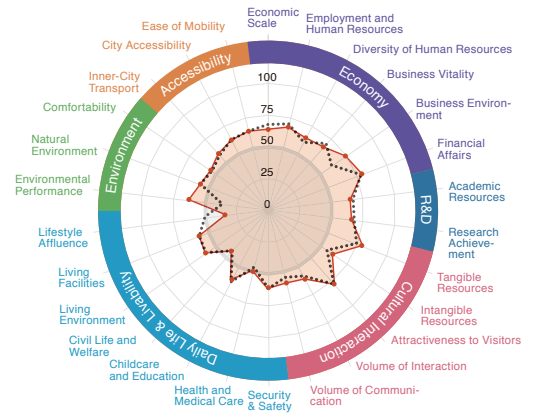
3 CHUO

A city full of energy boasting convenient transportation and abundant natural environment

Chuo is highly livable while being located within the central urban area, and performs at the top of Accessibility while also receiving excellent results in Daily Life & Livability, Environment, and Economy & Business. The city also shows improved scores over last year in Economy & Business' "Employment and Human Resources", as well as "Health and Medical Care" in Daily Life & Livability. Noticeably, Chuo's growth in Environment continues with Rate of Self-Sufficient Renewable Energy in "Environmental Performance" and Satisfaction with Natural Environment in "Natural Environment" returning strong results, denoting the city's policy initiative of "A city tied to a future environment filled with abundant greenery and water".

Function-specific rank and deviation
(Rank from 2018)

Indicator group-specific strengths and weaknesses

Function-Specific Scores

Economy & Business

Rank	City	Score
1	Chiyoda	437.0
2	Minato	396.8
3	Chuo	346.0
4	Shibuya	312.7
5	Shinjuku	285.6
6	Shinagawa	248.3
7	Toshima	242.5
8	Koto	234.9
9	Bunkyo	228.4
10	Taito	226.0
11	Meguro	222.9
12	Nakano	213.5
13	Suginami	197.3
14	Setagaya	195.8
15	Ota	190.0
16 ~ 23	Sumida,Kita,Arakawa,Itabashi, Nerima,Adachi,Katsushika, Edogawa (Listed by city code)	

R & D

Rank	City	Score
1	Bunkyo	85.8
2	Shinjuku	75.2
3	Meguro	69.0
4	Minato	66.1
5	Chiyoda	57.7
6	Chuo	17.3
7	Setagaya	15.4
8	Toshima	14.5
9	Shibuya	13.7
10	Arakawa	11.7
11	Itabashi	11.6
12	Nerima	11.3
13	Ota	11.2
14	Koto	11.2
15	Katsushika	9.3
16 ~ 23	Taito,Sumida,Shinagawa,Nakano, Suginami,Kita,Adachi,Edogawa (Listed by city code)	

Cultural Interaction

Rank	City	Score
1	Minato	215.9
2	Chiyoda	194.3
3	Shinjuku	178.6
4	Shibuya	175.3
5	Taito	171.2
6	Bunkyo	154.2
7	Koto	148.1
8	Chuo	148.1
9	Sumida	126.3
10	Shinagawa	116.4
11	Toshima	113.9
12	Setagaya	94.3
13	Meguro	83.5
14	Ota	80.0
15	Katsushika	79.0
16 ~ 23	Nakano,Suginami,Kita,Arakawa, Itabashi,Nerima,Adachi,Edogawa (Listed by city code)	

Daily Life & Livability

Rank	City	Score
1	Chiyoda	375.0
2	Chuo	370.1
3	Bunkyo	342.4
4	Minato	337.7
5	Shibuya	337.0
6	Shinjuku	321.7
7	Setagaya	307.4
8	Shinagawa	307.1
9	Suginami	303.8
10	Toshima	300.4
11	Meguro	297.1
12	Itabashi	291.1
13	Arakawa	290.8
14	Taito	285.8
15	Nerima	282.6
16 ~ 23	Sumida,Koto,Ota,Nakano,Kita, Adachi,Katsushika,Edogawa (Listed by city code)	

Environment

Rank	City	Score
1	Koto	143.9
2	Chuo	141.3
3	Edogawa	128.2
4	Minato	127.5
5	Chiyoda	126.7
6	Ota	116.8
7	Nerima	114.1
8	Katsushika	113.9
9	Suginami	112.0
10	Shinagawa	111.7
11	Sumida	111.4
12	Arakawa	109.6
13	Setagaya	107.8
14	Adachi	107.8
15	Bunkyo	103.7
16 ~ 23	Shinjuku,Taito,Meguro,Shibuya, Nakano,Toshima,Kita,Itabashi (Listed by city code)	

Accessibility

Rank	City	Score
1	Chuo	225.1
2	Chiyoda	219.7
3	Minato	208.6
4	Shibuya	203.8
5	Shinagawa	202.0
6	Taito	197.7
7	Bunkyo	197.1
8	Shinjuku	196.5
9	Koto	194.0
10	Meguro	190.4
11	Ota	188.4
12	Toshima	186.7
13	Arakawa	181.6
14	Sumida	180.2
15	Nakano	179.0
16 ~ 23	Setagaya,Suginami,Kita,Itabashi, Nerima,Adachi,Katsushika, Edogawa (Listed by city code)	

Total Score

Rank	City	Score
1	Chiyoda	1,410.4
2	Minato	1,352.7
3	Chuo	1,247.9
4	Shinjuku	1,160.2
5	Shibuya	1,138.7
6	Bunkyo	1,111.6
7	Koto	1,000.2
8	Shinagawa	993.9
9	Taito	985.2
10	Meguro	962.5
11	Toshima	940.5
12	Setagaya	895.6
13	Sumida	879.0
14	Ota	863.6
15	Suginami	858.4
16 ~ 23	Nakano,Kita,Arakawa,Itabashi,Nerima,Adachi, Katsushika,Edogawa (Listed by city code)	

Tokyo 23 Wards-Results and Analysis / Function Specific Score

Actor-Specific Scores

In order to evaluate the function-specific characteristics of cities from the viewpoint of 'people', 6 types of actors (Single, Family, Seniors, Executive, Employee, Tourist) were established for this report. To calculate the actor-specific score, first the individual urban needs were determined for each actor, after which the indicators associated with those needs were selected and values were averaged to produce a score.

Single
Number of Indicators 20/83

Rank	City	Score
1	Chuo	64.8
2	Chiyoda	61.2
3	Minato	56.7
4	Shibuya	53.8
5	Bunkyo	51.6
6	Shinjuku	51.6
7	Taito	51.4
8	Shinagawa	49.6
9	Meguro	49.2
10	Toshima	48.5
11	Suginami	46.0
12	Setagaya	46.0
13	Ota	44.8
14	Arakawa	44.6
15	Sumida	44.2
16 ~ 23	Koto、Nakano、Kita、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Family
Number of Indicators 38/83

Rank	City	Score
1	Chuo	55.5
2	Chiyoda	53.2
3	Minato	52.4
4	Bunkyo	49.4
5	Shibuya	48.4
6	Shinjuku	48.0
7	Shinagawa	47.3
8	Suginami	46.4
9	Meguro	45.9
10	Koto	45.7
11	Setagaya	45.6
12	Taito	45.3
13	Ota	44.9
14	Arakawa	44.4
15	Toshima	44.2
16 ~ 23	Sumida、Nakano、Kita、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Seniors
Number of Indicators 34/83

Rank	City	Score
1	Chuo	61.9
2	Chiyoda	58.2
3	Minato	54.9
4	Bunkyo	54.4
5	Shibuya	52.6
6	Shinjuku	50.6
7	Shinagawa	50.6
8	Meguro	49.8
9	Taito	49.5
10	Koto	48.8
11	Setagaya	47.4
12	Arakawa	47.4
13	Suginami	47.1
14	Ota	46.7
15	Sumida	46.5
16 ~ 23	Nakano、Toshima、Kita、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Executive
Number of Indicators 34/83

Rank	City	Score
1	Chiyoda	66.9
2	Minato	62.6
3	Chuo	54.6
4	Shibuya	48.3
5	Shinjuku	46.6
6	Bunkyo	42.8
7	Shinagawa	41.2
8	Koto	41.0
9	Meguro	39.8
10	Toshima	39.2
11	Taito	37.7
12	Nakano	35.3
13	Setagaya	34.0
14	Ota	33.8
15	Suginami	33.4
16 ~ 23	Sumida、Kita、Arakawa、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Employee
Number of Indicators 17/83

Rank	City	Score
1	Chuo	71.3
2	Chiyoda	64.4
3	Minato	62.1
4	Shinjuku	56.5
5	Shibuya	56.2
6	Taito	54.6
7	Toshima	50.3
8	Shinagawa	47.3
9	Bunkyo	46.5
10	Meguro	44.3
11	Arakawa	44.2
12	Sumida	44.2
13	Nakano	43.5
14	Koto	41.6
15	Ota	39.4
16 ~ 23	Setagaya、Suginami、Kita、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Tourist
Number of Indicators 32/83

Rank	City	Score
1	Minato	49.6
2	Chuo	48.5
3	Chiyoda	47.8
4	Shinjuku	42.5
5	Taito	42.3
6	Shibuya	41.9
7	Koto	40.2
8	Bunkyo	39.2
9	Shinagawa	36.3
10	Sumida	34.6
11	Toshima	32.4
12	Setagaya	31.5
13	Meguro	31.2
14	Ota	30.9
15	Suginami	28.8
16 ~ 23	Nakano、Kita、Arakawa、Itabashi、Nerima、Adachi、Katsushika、Edogawa (Listed by city code)	

Special Research

Spatial Connectivity Analysis of the Movement of Foreign Visitors to Japan

～Mobile Spatial Statistics Data Analysis～

① Background and Objective

It is anticipated that following Japan's 2008 peak and subsequent decline in total population, the number will continue to fall at a higher rate. Alternatively, the number of foreign tourists visiting Japan has increased and is expected to grow drastically larger in the future. Within such circumstances, capturing the expansion of population in international visitors and inducing a dynamic interplay between cities is one key to the continued improvement of vitality among Japan's major urban areas. With that, this investigation aims to contribute to future strategic plans for tourism in individual cities by visualizing the movement of foreign tourists between the JPC target cities and through that clarifying the potential or challenges that each city faces from the viewpoint of tourism.

② Methodology

For conducting the spatial analysis of the movement of foreign visitors to Japan, "Mobile Spatial Statistics" produced by DOCOMO InsightMarketing, INC. is utilized. This mobile spatial statistics data contains positional information of the population and is created using the NTT Docomo mobile phone network. It catches the broad hourly position of the population, 24 hours per day and 365 days per year.

■**Data classification**	: DOCOMO InsightMarketing – Mobile Spatial Statistics
■**Target period**	: 1st January 2018 – 31st December 2018 (1-year period)
■**Area granularity**	: Tokyo's 23 wards taken as 1 city, with other cities using their administrative boundaries.
■**Target population**	: Foreign visitors to Japan (excluding residents)

③ Selection of target cities

Target cities were selected based on the following 2 criteria below.
1) The top 20 cities out of the JPC 72 cities + Tokyo's 23 wards (1 city) based on total number of overnight stays within a 1-year period.
2) After collating the top 20 cities selected and matching them with the JPC-defined 10 regions, it was found that 2 regions (Tohoku and Shikoku) were missing, so the 2 cities within those regions with the largest number of foreign visitors were added (Sendai and Takamatsu).
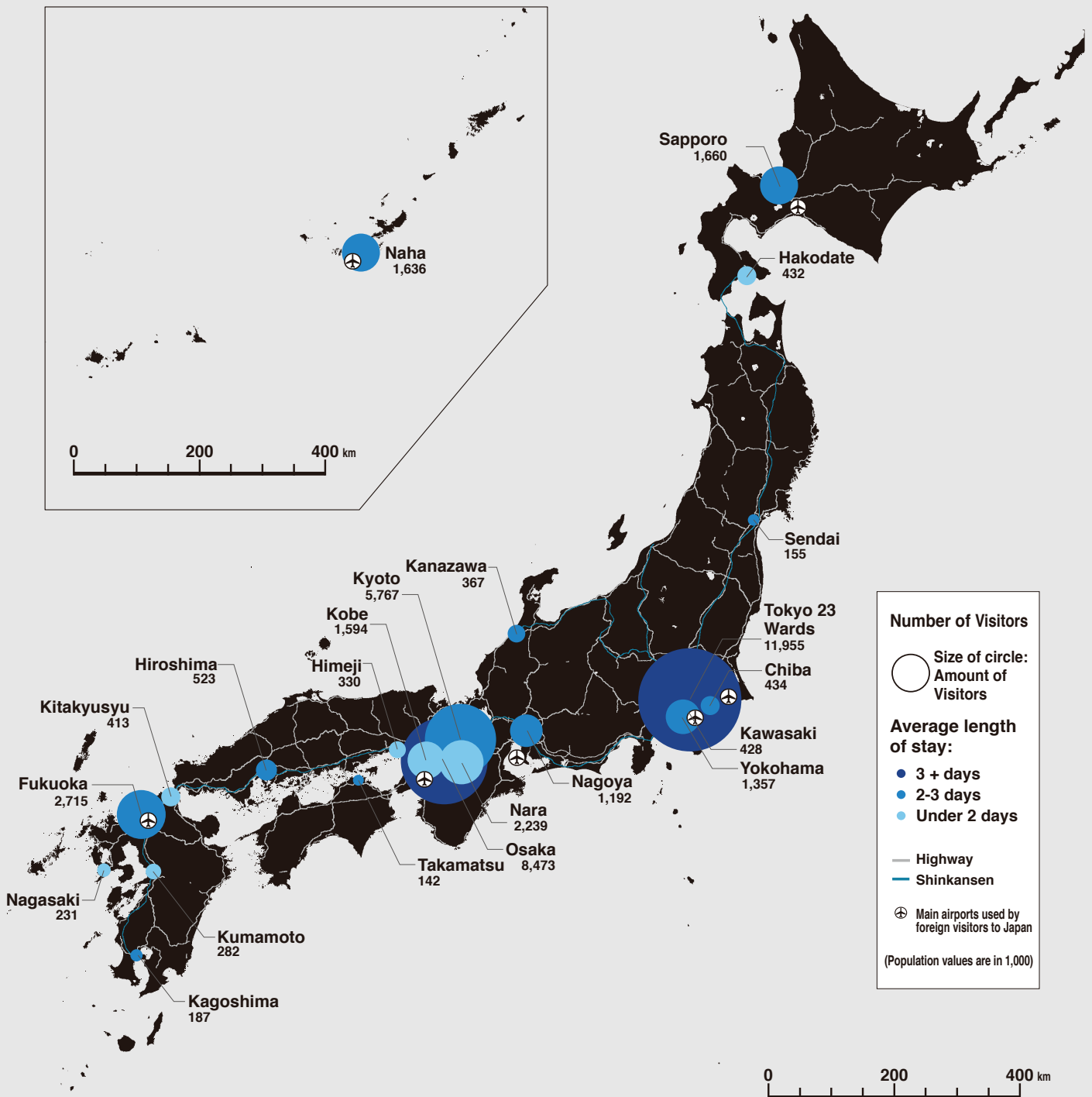
Target Cities

22 cities comprised of: Tokyo 23 wards, Osaka, Kyoto, Fukuoka, Sapporo, Naha, Yokohama, Nagoya, Kobe, Nara, Hiroshima, Kawasaki, Chiba, Hakodate, Kitakyushu, Kanazawa, Kagoshima, Kumamoto, Nagasaki, Himeji, Sendai, Takamatsu

The complete results of this special research will be included in the Japan Power Cities DATABOOK 2019 (expected release of October 2019).
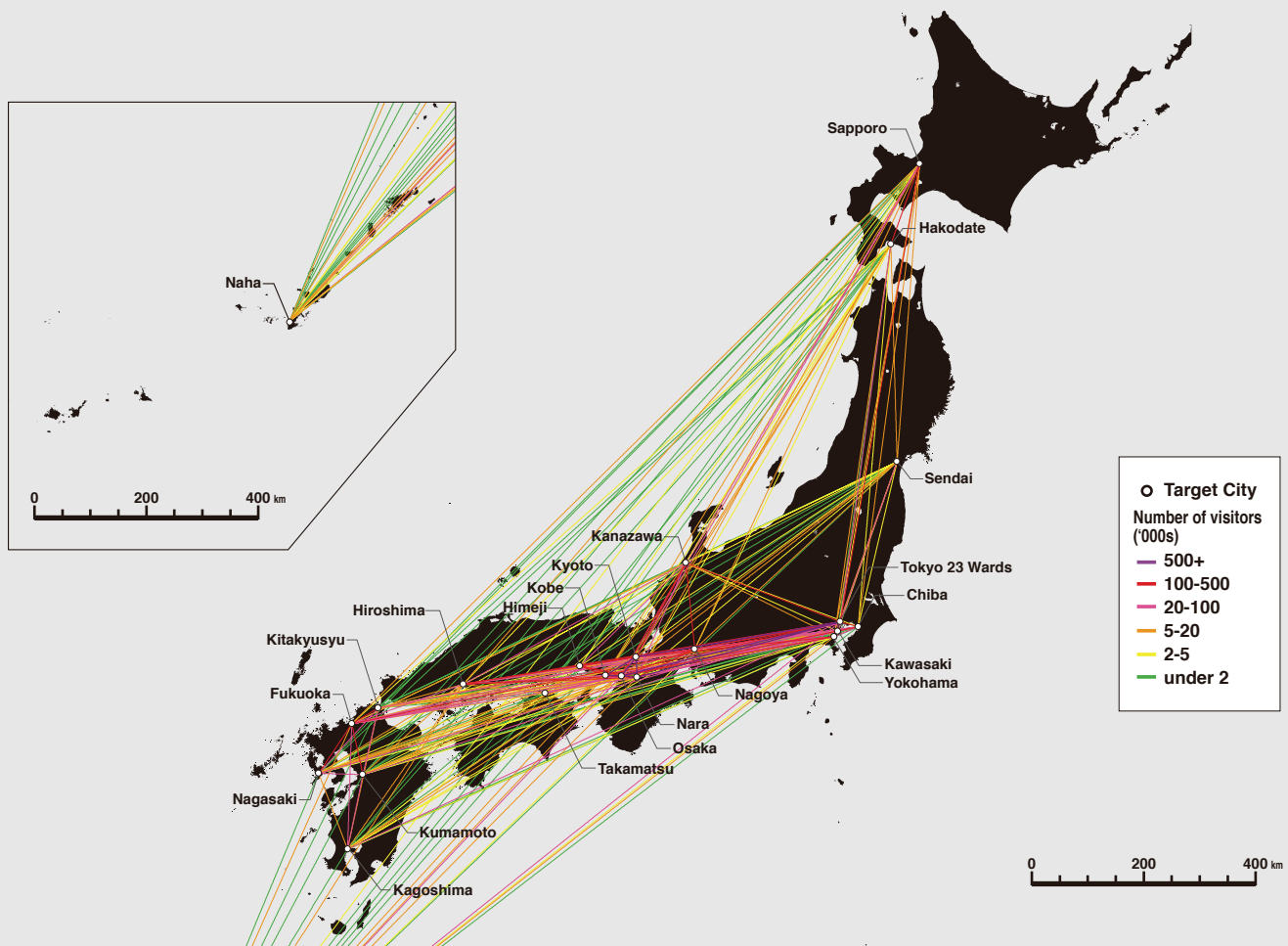
Analysis of the Number of Visitors by City

The total number of foreign visitors (actual number of individuals) was totaled and ranked for the 22 target cities, and the annual total number as well as the differences in scale were clarified.
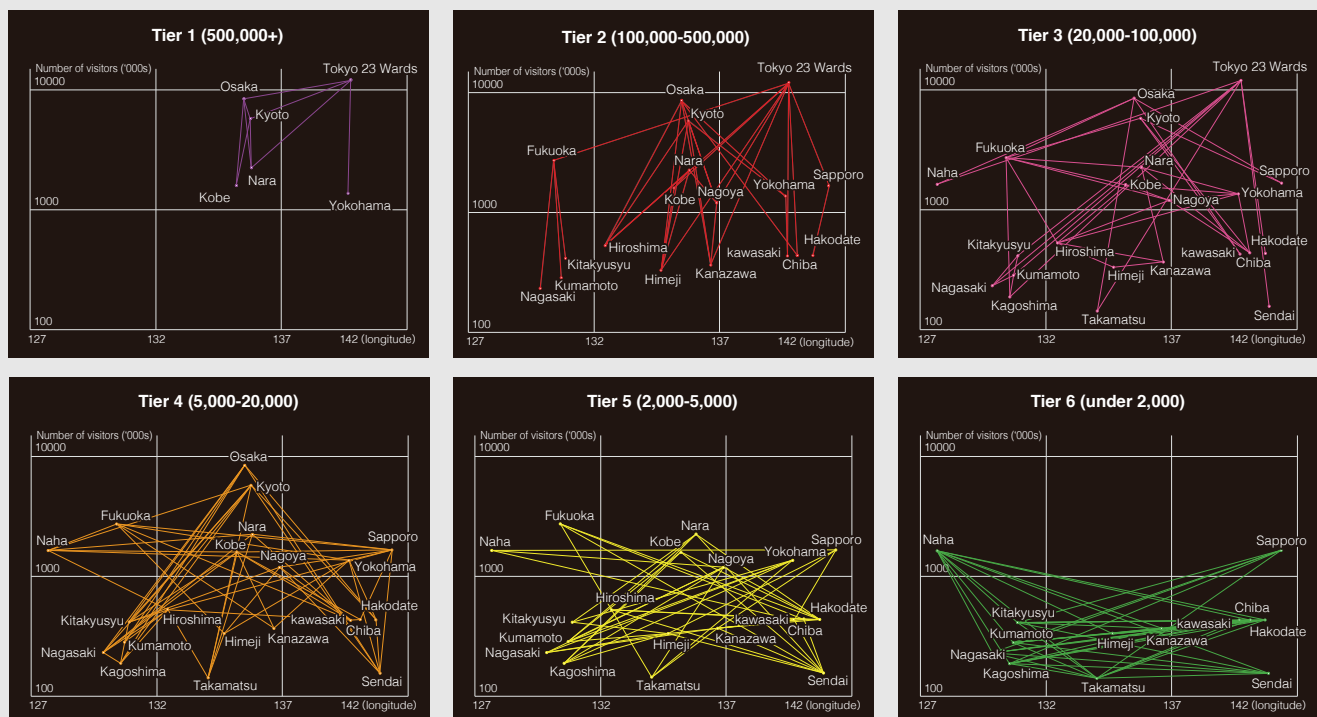

Sapporo 1,660
Hakodate 432
Naha 1,636
Sendai 155
Kanazawa 367
Kyoto 5,767
Kobe 1,594
Himeji 330
Hiroshima 523
Kitakyusyu 413
Fukuoka 2,715
Nagasaki 231
Kumamoto 282
Kagoshima 187
Takamatsu 142
Nara 2,239
Osaka 8,473
Nagoya 1,192
Tokyo 23 Wards 11,955
Chiba 434
Kawasaki 428
Yokohama 1,357

0   200   400 km

Number of Visitors

Size of circle: Amount of Visitors

Average length of stay:
- 3 + days
- 2-3 days
- Under 2 days

— Highway
— Shinkansen

⊕ Main airports used by foreign visitors to Japan

(Population values are in 1,000)

0   200   400 km

Analysis of movement between cities

A leveled classification of city groups was noted by cross tabulating the total number of foreign visitors (individuals) and clarifying the strength of connections between the 22 target cities while displaying the different levels of strength. The graph below shows the level of strength for connectivity of city groups (Tier 1 – 6).

Legend:
- ○ Target City
- Number of visitors ('000s)
- 500+
- 100-500
- 20-100
- 5-20
- 2-5
- under 2

■City groups based on the strength of connection (visitors) between cities (Tier 1-6)

Tier 1 (500,000+)

Tier 2 (100,000-500,000)

Tier 3 (20,000-100,000)

Tier 4 (5,000-20,000)

Tier 5 (2,000-5,000)

Tier 6 (under 2,000)

City visitor analysis

The cities (destination) visited by foreign visitors who stayed in the 22 target cities (origin) within one itinerary during the target 1-year period were ordered by tallying the total number of visitors. The cities visited were aggregated from Japan's cities, town, and villages. Through this analysis, regions and cities with strong connections to each origin city became evident. The analysis results of Tokyo's 23 wards as well as other cities are introduced here. More detailed results for each city can be found in the Japan Power Cities DATABOOK 2019 (expected release of October 2019).

■Tokyo 23 wards results

Ratio of administrative and regional areas for destination cities
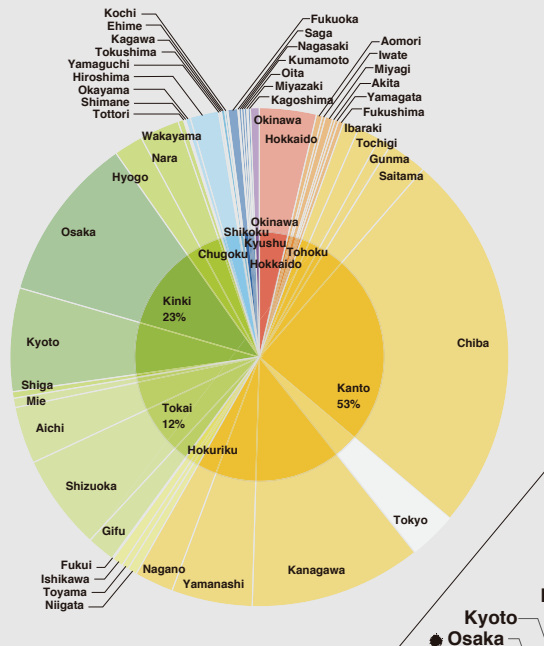
Analysis of Top 50 visited domestic cities

Legend:

Target City

Number of visitors ('000s)
- 1000+
- 500-1000
- 200-500
- under 200

Average length of stay
- 3+ days
- 2-3 days
- under 2 days

- Highway
- Shinkansen

⊕ Main airports used by foreign visitors to Japan
⊹ Other airports

◇ UNESCO World Heritage Site (natural)
◉ UNESCO World Heritage Site (cultural)

0   200   400 km
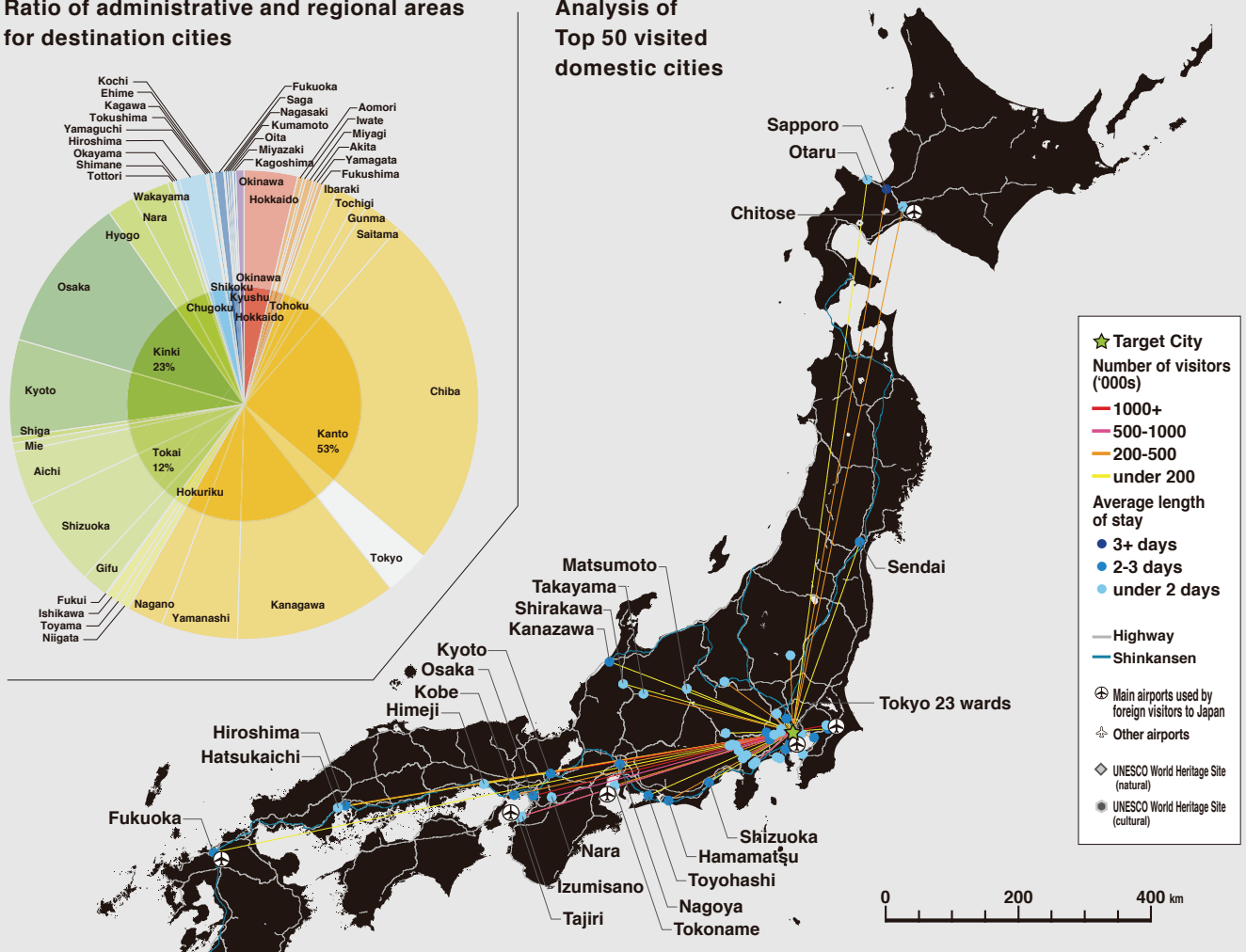
Tokyo 23 wards (enlarged)
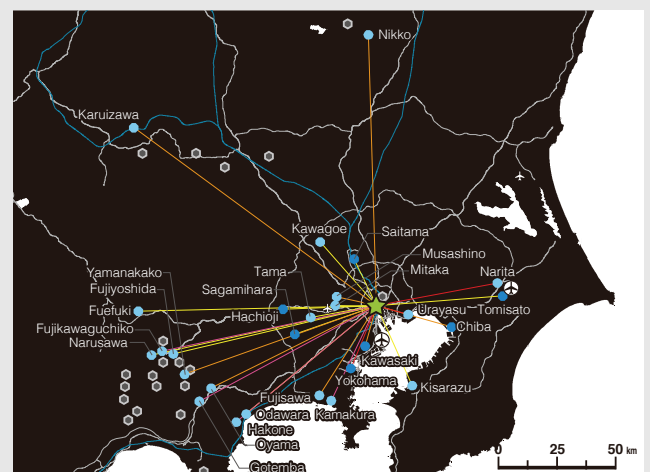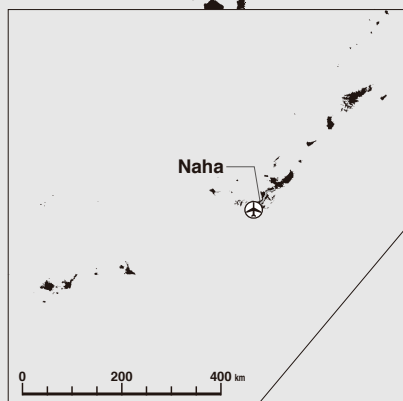
■Results of city-specific analysis

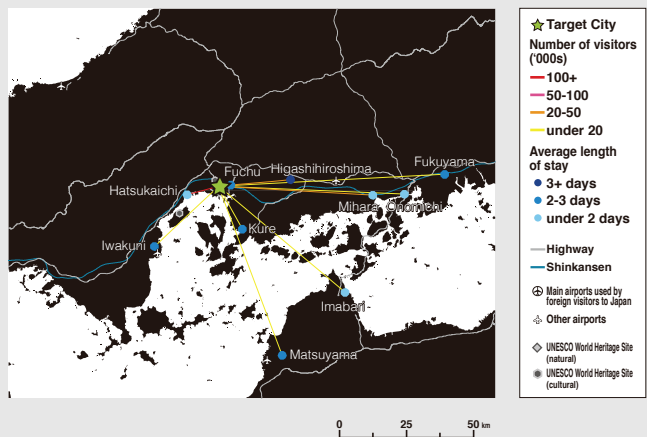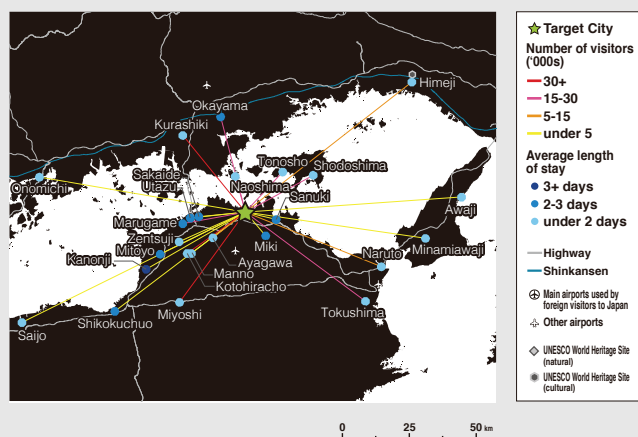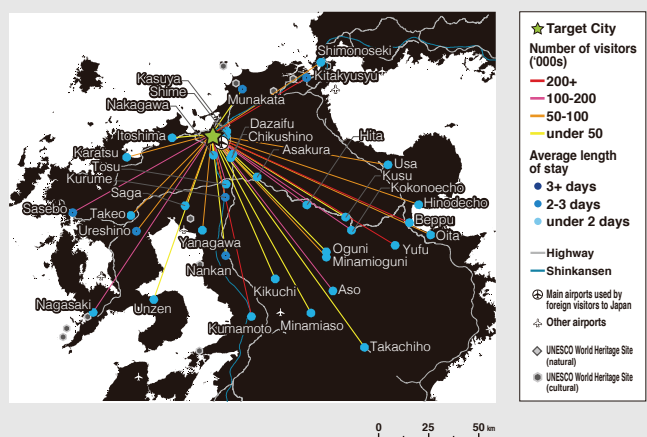## Sapporo
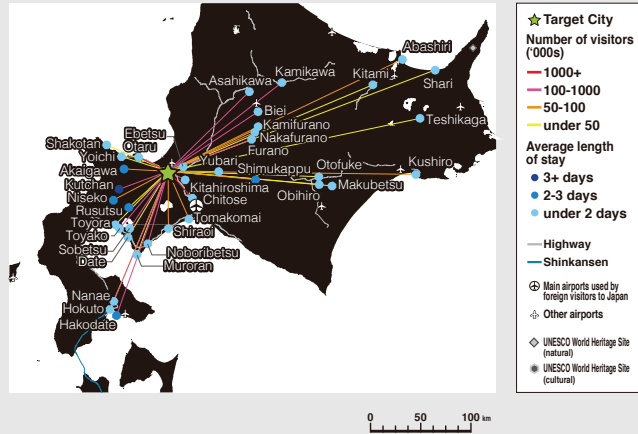
Sendai
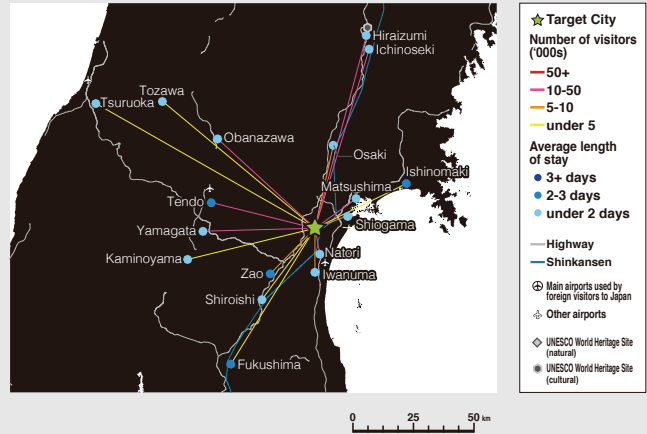
Osaka
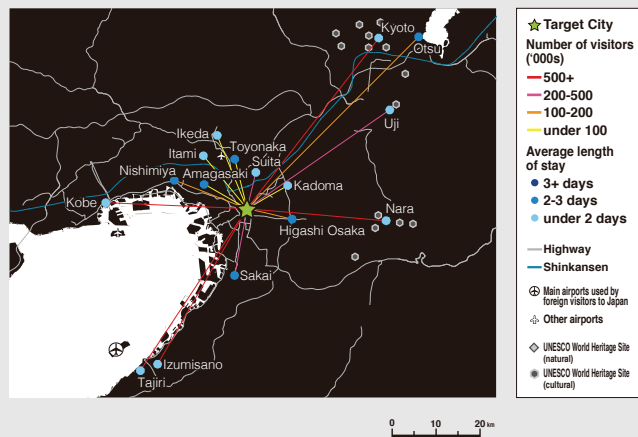
Hiroshima

Takamatsu

Fukuoka

Definitions of Indicators

Indicators were established based on quantitative data (79 indicators) drawn from statistical materials, and survey data (4 indicators) obtained from a resident questionnaire carried out by the Mori Memorial Foundation. Data acquisition methods are outlined in (1) and (2) below.

(1) Data derived from statistical materials (79 indicators)
- When available, data is taken from official public sources.
- Regarding data not obtained from public statistics,other reputable sources are used.
- Data was collected in the period of February 2018 – May 2019.

(2) Resident Questionnaire (4 indicators)
- Survey method: internet questionnaire
- Respondents: residents aged 20 years and above, living in one of the 95 target cities.
- Number of responses: 28,400 responses (300 per city, except 200 per Chiyoda city) with a 1:1 male-female ratio. Respondent age ranges were set at a ratio of 6:4 for 20-59 year-olds to those 60 years old and over.
- Survey period: April, 2019
- Survey items: Respondents were asked to answer 6 questions on a 4-step scale regarding the level of satisfaction for the city in which they are living.
- Surveyed by: Survey Research Center Co., Ltd.

Function	Indicator Group	No.	Indicator	Definition
Economy & Business	Economic Scale	1	Total Value Added	The total value added in terms of number of enterprises.
		2	Intra-regional Gross Expenditure	The total expenditure recorded intraregionally. For Tokyo's 23 wards, data was estimated using population figures and total employment, with values being added together for each ward as a ratio of the total value of gross expenditure for all wards.
		3	Daytime-Nighttime Population Ratio	The ratio of the population commuting to work or school in the area divided by the residential population of that area.
	Employment and Human Resources	4	Total Employment	The number of employees according to the number of employees per office of private business offices in general industries or management professions, the ratio of men-to-women workers, and employees per office.
		5	Wage Level	The sum values for total salary and total welfare payments divided by the total number of employees in the target city or ward.
		6	Higher-Education Completion Rate	The ratio of higher-education graduates (juniour college, national college of technology, 4-year program) that exist among the total population aged 18 and above.
		7	Intake/Outflow of Young Employees	The ratio of the population in 2005 who have not yet entered higher-education (aged 15-19), against the population in 2015 who had completed their higher-education (aged 25-29).
	Diversity of Human Resources	8	Female Employment Ratio	The ratio of female workers between the ages of 15-64 to the total number of employees aged 15-64.
		9	Foreign Employment Ratio	The ratio of foreign workers aged 15 and above to the total number of employees aged 15 and above.
		10	Elderly Employment Rate	The elderly employment rate calculated as the number of employees aged 65 and above divided by the total population aged 65 and above.
	Business Vitality	11	Ratio of New Businesses	The ratio of newly established businesses to the total number of businesses in the target city or ward.
		12	Labor Productivity	The ratio of total value added to the number of employees in general industries (exluding public entities).
		13	Number of Certified Special Zones	The indexed value related to the number of businesses registered within certified national strategic special zones, as well as the total number of special zones that exist within the target city or ward.
	Business Environment	14	Ratio of Employees in Service Industry for Business Enterprises	The ratio of employees in business service professions (goods leasing, special services, and advertising) to the total number of employees in the workforce.
		15	Total Supply Area of New Offices	The total floor area of newly constructed real-estate buildings divided by the total number of employees in the workforce.
		16	Density of Flexible Workplaces	Calculated based on the following criteria: (1) an indexed value of the number of coffee shops / cafes divided by the total floor area of those establishments, and (2) an indexed value of the ratio of coworking spaces to total usable land area in target cities and municipalities.
	Financial Affairs	17	Financial Capability Index	The value in the Ministry of Internal Affairs and Communications' Financial Strength Index. For Tokyo's 23 wards, the value in the General Affairs Bureau's Economic Strength Index is used.
		18	Public Account Balance Ratio	The current account balance ratio for the target city or ward.
		19	Real Debt Expenditure Ratio	The total value of debt payments divided by the annual public income for the target city or ward.
		20	Future Burden Ratio	The total outstanding debt divided by the annual public income for the target city or ward.

Function	Indicator Group	No.	Indicator	Definition
Research & Development	Academic Resources	21	Ratio of Academic and Development Research Institution Employees	The total number of employees in research & development institutions divided by the total number of employees in the workforce for the target city or ward.
		22	Number of Leading Universities	Calculated based on the following criteria: (1) the indexed score based on the rank of universities featured in Benesse's World Ranking of Top 150 Universities - Japan Edition that are located in the target city or ward; and (2) the indexed score based on the rank of universities featured in Times Higher Education's The World University Rankings 2019 that are located in the target city or ward. For both (1) and (2), universities with campuses in several different cities are counted for each target city or ward.
	Research Achievement	23	Number of Papers Submitted	The average number of papers on National Institute of Informatics' CiNii Articles in the past year submitted from the 136 universities which have published 1000 or more theses for the 10-year period between 2004-2013 according to NISTEP's 2015 Japanese Universities' Research Theses Benchmarking report. Papers were searched on 2017/10/23 and 2018/3/6, with the average values for both dates used. For universities with campuses in different cities, the total number of theses was divided by the number of campuses.
		24	Number of Leading Firms in Global Niches	The number of headquarters, offices, and factories maintained by companies featured in the Ministry of Economy, Trade & Industry's "Global Niche Top 100 Companies".
Cultural Interaction	Tangible Resources	25	Number and Rating of Tourist Attractions	The indexed value of the number of tourism areas and comments based on Tripadvisor's tourism information page for each target city or ward.
		26	Number of Designated Cultural Assets	The number of designated cultural assets recognized by UNESCO. Points awarded as follows: UNESCO world heritage site (3 points); national treasures, special historical landmark, special place of scenic beauty, important traditional architecture preservation district (2 points); important cultural property, registered tangible cultural properties, historical landmark, registered monument, place of scenic beauty, important cultural scenery (1 point).
		27	Active Approach to Scenic Town Planning	Calculated based on the following criteria: (1) the existence of scenery planning as well as scenic town planning model districts; (2) the number of prizes awarded and activities carried out after 2011 in the categories of urban space, scenic town planning activities-training, and scenery planning activities, according to the Executive Committee of Scenic Planning Day; the number districts awarded the "Beautiful Townscape Prize" between the years 2001-2010; and the number of districts recognized in the "Urban Scenery 100" between the years 1991-2000 (1 point / award). Those awarded to the prefecture are not counted.
	Intangible Resources	28	Number and Rating of Events	The indexed value of the number of events and comments recorded in Tripadvisor's "Events" listing for "Sightseeing" in the target city or ward.
		29	Workers in Creative Industries	The ratio of workers in relevant creative industries to the total employment for each target city. The definition of "creative industries" is based on information provided by the UNDP, UNESCO, and the Tokyo Metropolitan Government's Bureau of Industrial and Labor Affairs, with 44 relevant industry classifications selected from the Ministry of Internal Affairs and Communications' 2016 Economic Census.
		30 Q	Opportunities for Cultural, Historical, and Traditional Interaction	Based on responses from a resident questionnaire asking whether there are abundant opportunities for cultural, historical, and traditional interaction for people visiting from other cities.
	Attractiveness to Visitors	31	Number of Accomodation Facilities	The number of lodging facilities recorded on Recruit's "Jalan.net" website.
		32	Number of Luxury Guest Rooms	The number of guest rooms in lodging facilities rated as "High Class" according to Recruit's "Jalan.net" travel website.
		33	Number of Event Halls	The number of theatres and concert halls according to the MEXT 2017 Social Education Survey, as well as the number of "High Class" hotels offering banquet hall facilities according to Recruit's "Jalan.net" travel website.
		34	Multilingual Services at Tourist Information Desks and Hospitals	Calculated based on the following criteria: (1) the weighted value of the number of tourist information centers offering multilingual services and sightseeing guidance according to the JNTO; (2) the number of medical institutions suited to accepting foreigners according to the JNTO.
	Volume of Interaction	35	Weekend Visitor Population	The number taken as the ratio of the weekend population (15-80 years old; not including the nighttime population) over a 12-month period divided by the daytime population.
		36	Volume of People Visiting for Tourism or Sightseeing	The percentage of visitors to the target city or ward selecting "Pleasure / Sightseeing" as their purpose of visit according to the "2018 Regional Brand Survey" conducted by the Brand Research Institute.
		37	Number of International Conferences and Exhibitions Held	The added index values of the number of conference events held and the number of exhibitions held in the target city or ward.
	Volume of Communication	38	Tourism Promotion Activities	Calculated based on the following criteria: (1) An indexed value of total points based on 1 point given for each Destination Marketing Organization (DMO) registered in the target city or ward, and 0.5 points given for each wide-area cooperation DMO or regional cooperation DMO located in the target city or ward; (2) the indexed value of total points based on 1 point given for each exhibition organization (excluding private companies) in the target city or ward registered on Tourism Expo Japan, and 0.5 points given for each prefectural-level organization.
		39	Number of Followers of Local Government SNS Accounts	The indexed value of the number of followers on social media accounts (Facebook, Twitter and YouTube) attributed to local self-governing bodies or organizations, including disaster information services and election-related channels (exluding tourism-related channels).
		40	Level of Attractiveness, Recognition, and Intention to Visit	The total points given for level of attractiveness, recognition, and intention to visit as assigned in the "2018 Regional Brand Survey" conducted by the Brand Research Institute.

Q : Indicators using questionnaires

Function	Indicator Group	No.	Indicator	Definition
Daily Life & Livability	Security & Safety	41	Recognized Criminal Offenses	Calculated based on the total number of criminal offenses as provided by police headquarters, prefectural police stations, or the publically released information on acknowledged criminal offenses, divided by the daytime population (000s) of the target city or ward.
		42	Traffic Accident Fatalities	The total number of traffic-related fatalities divided by the daytime population (0,000s) of the target city or ward.
		43	Level of Safety During Disaster	Based on the scores for the following 4 categories: 1) The ratio of total number of households constructed before 1980 to the total number of households; 2) the ratio of total number of households located over 1km away from public evacuation zones to the total number of households; 3) the ratio of estimated area affected by potential flooding to the total area; 4) the ratio of total number of building fire outbreaks to the daytime population (0,000s) of the target city or ward.
		44	Vacancy Rate	The total number of vacant residential units divided by the total number of residential units in the target city or ward.
	Health and Medical Care	45	Number of Doctors	The total number of doctors employed at medical facilities divided by the daytime population (000s) of the target city or ward.
		46	Number of Hospitals and Clinics	Calculated based on the indexed value of the total number of hospitals, as well as the total number of general medical clinics, divided by the daytime population (per million people) in the target city or ward.
		47	Life Expectancy and Healthy Life Expectancy Rate	Calculated based on the following criteria: (1) life expectancy for the target city or ward; (2) the average number of years a person can remain independently active in daily life in the prefecture of the target city or ward. As this data is taken from the prefectural level, (2) is weighted at half of (1).
	Childcare and Education	48	Total Fertility Rate	The total fertility rate (Bayes estimate) for the target city or ward.
		49	Availability of Daycare Services	The ratio of the number of daycare applicants aged 0-2 years to the total capacity in the target city or ward.
		50	Assistance for Children's Medical Costs	The total points awarded for medical costs of a "visit" and "hospitalization" based on age categories (before entering school: 1 point; up to 9 years old: 2 points; up to 12 years old: 3 points; up to 15 years old: 4 points; up to 18 years old: 5 points) in the target city or ward, as well as the total points awarded based on income restrictions or partial self-payment requirements (1 point given if none exist).
		51	Number of High Schools with High Deviation Scores	The number of high schools returning deviation scores of 65 or above in the target city or ward according to a representative high school deviation score site.
	Civil Life and Welfare	52	Ease of Integration for Foreign Residents	The indexed value of points awarded for policies or initiatives related to easing the integration of foreign residents. The 13 policy categories are based on those found in a 2019 Nikkei Newspaper study. Points awarded as follows: 1 point for categories with policies already implemented; 0.5 points for categories with policies under consideration; 0 points for categories with no policies or no response. For cities not covered in the report, their municpal administative bodies were consulted.
		53	Number of Elderly Requiring Assistance or Care	The number of people aged 65 and above requiring primary nursing care as of November 2018, divided by the total population aged 65 and above in the target city or ward. Results for Saga City were taken from the city's 2016 statistical data associated with "social welfare", and divided by the population aged 65 and over.
		54	Number of Regional Comprehensive Assistance Centers	The number of self-governing, or social welfare centers that are open to the public (including branches, sub-centers, annexes) within the target city or ward, as well as the total number of centers offering at-home support, divided by the total elderly population (000s).
	Living Environment	55 Q	Satisfaction with Living Environment	Based on responses from a resident questionnaire regarding the level of satisfaction with their living environment (including disaster prevention, crime, convenience, etc.).
		56	Volume of New Housing Supply	The total number of newly constructed residential buildings divided by the nighttime population (per 10,000 people) of the target city or ward.
		57	Size of Residences	The gross floor area per residence in the target city or ward.
		58	Ratio of Barrier-free Homes	The number of barrier-free households in which a family member aged 65 and above resides divided by the number of households in which a family member aged 65 or over resides in the target city or ward.
	Living Facilities	59	Density of Retail Businesses	The number of retail businesses (small goods; textiles, clothing, personal effects; food and drink; mechanical parts; and other small retail shops) divided by the total land area in use for the target city or ward.
		60	Density of Restaurants	The total number of food and drink establishments as well as take-out and delivery services divided by the total area in use of the target city or ward.
		61	Density of Convenience Stores	The total number of convenience stores divided by the total area in use of the target city or ward.
	Lifestyle Affluence	62	Disposable Income	The total monthly disposable income (income after expenses) in a household with 2 or more members within the target city or ward. For Tokyo's 23 wards, the average value of special wards of Tokyo is applied.
		63	Price Level	The total indexed value of the 2017 regional differentiation in price level (where that national level = 100), excluding rent. For cities not hosting a prefectural office, or not defined as ordinance-designated cities, data was unavailable and thus taken from prefectural sources.
		64	Cost of Housing	The total cost of homeownership-related expenses and rental expenses (for those not owning a home) for an occupied dwelling. For Tokyo's 23 wards, the values are estimated based on the average rental prices of a 2LDK in each of Tokyo's special wards, as recorded by a representative real estate listing site.

Function	Indicator Group	No.	Indicator	Definition
Environment	**Environmental Performance**	65	Percentage of Waste Recycled	The percentage of waste recycled in the target city or ward. For Tokyo's 23 wards, the average value of special wards of Tokyo is applied.
		66	CO_2 Emissions	The total estimated amount of CO_2 emissions for 2018 divided by the daytime population (per 10,000 people) in the target city or ward.
		67	Rate of Self-Sufficient Renewable Energy	The rate of self-sufficient renewable energy use for 2017 (electric and thermal) in the target city or ward.
		68	Number of EV Charging Stations	The number of electric vehicle charging stations divided by the total number of passenger vehicles (general, private, and business-use) of the target city or ward.
	Natural Environment	69 Q	Satisfaction with Natural Environment	Based on responses from a resident questionnaire regarding the level of satisfaction with the natural environment (mountains, forests, ocean, rivers, green parks, roadside trees etc.) in the target city or ward.
		70	Green Coverage Ratio in Urban Areas	The total area of green coverage (including rice fields, agricultural fields, forests, vacant land, parks, green tracts, golf courses) divided by the total area of the target city or ward. The total area of the target city or ward is defined as the "urban area", taken from the 5-types of planning areas delineated by the national government.
		71	Waterfront Areas	The estimated total area of waterfronts divided by the total area of the target city or ward. The estimate is based on the following rules: (1) For areas with polygonal water features (mostly ocean), the area is calculated within a 100m radius from shore; (2) for areas with line-based water features (mostly rivers), the length of line-data within a 100m radius of the shore is calculated and a width of 10m is used to attain the applicable area.
	Comfortability	72	Annual Sunshine Hours	The total number of sunshine hours in a one-year period for the target city or ward.
		73	Number of Comfortable Temperature / Humidity Days	The number of days in a calendar year (2018) with a discomfort index score between 60-75 according to the observation point nearest to the target city or ward's primary local government office. The discomfort index is calculated using the average daily temperature as well as the average daily humidity. The discomfort index (DI) is drawn from the following equation: $DI = 0.81T(\text{temperature}) + 0.01H(\text{humidity}) \times (0.99T - 14.3) + 46.3$
		74	Air Quality	The indexed value of the average daily concentration of Nitrous Oxide and PM2.5 in the air for the target city or ward.
Accessibility	**Inner-City Transport**	75 Q	Convenience of Public Transport	Based on responses from a resident questionnaire regarding the level of satisfaction with public transport (railroad and bus operations, facilities & equipment, service etc.) in the target city or ward.
		76	Density of Train Stations and Bus Stops	The indexed value of the number of rail and bus stations divided by the total area as defined by city planning in the target city or ward.
		77	Frequency of Traffic Congestion	The indexed value of the number of rail and bus stations divided by the total area as defined by city planning in the target city or ward.
	City Accessibility	78	Ease of Access to Airports	Calculated based on the following criteria: (1) the indexed value of the total, shortest distance access time (on a weekday, by car, with an arrival time of 10:00am) from the city or ward office to the nearest airport based on Google Maps estimates; (2) the indexed value of the total number of domestic cities that can be reached from the nearest airport to the target city or ward's office.
		79	Ease of Access to Shinkansen	Calculatd based on the following criteria: 1) for cities with Shinkansen stations, the total number of passengers using Shinkansen stations (exluding Yamagata and Akita Shinkansen lines). For cities without Shinkansen stations, the total number of passengers at the Shinkansen station nearest to the target city's biggest (by passenger volume) train station; and 2) for cities with no Shinkansen station, the total travel time from the target city's central station (station with highest passenger volume) to the nearest Shinkansen station (arriving at 10:00am on a weekday by train). For cities with Shinkansen stations, the travel time is set at 0. Data is not recorded for cities from which it would not be possible to reach the Shinkansen station by 10:00am. For stations not recording passenger numbers, additional data was collected.
		80	Number of Interchanges	The number of general interchanges as well as 'smart interchanges'.
	Ease of Mobility	81	City Compactness	The concentration of population divided by the nighttime population expressed as a ratio. The concentration of population is determined by (1) joining the disctricts within the city or ward that show densities above 4,000 people / km², and (2) selecting those adjoined districts that possess populations above 5,000 people according to the national census.
		82	Commuting Time	The median value for the commuting time of a household's primary supporter in the target city or ward.
		83	Ratio of Barrier-free Stations	The points value for barrier-free facilities awarded as follows: access routes with no difference in level = 1 point; station attendant assistance available = 0.5 points; no assistance available = 0 point. Furthermore, points are awarded based on information provided by the railway corporation. If no information is available, the station is awarded 0 points.

Q:Indicators using questionnaires

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