

Collection of attachments

This paper is a collection of all the presented attachments in the Appendix.

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A Appendix - SCI indicators

Figure A.1: Key survey data from IMD Smart City Index

	Structure	Technologies
Health and Safety:	Basic sanitation meets the needs of the poorest areas	Online reporting of city maintenance problems provides a speedy solution.
	Recycling services are satisfactory.	A website app allows residents to easily give away unwanted items.
	Public safety is not a problem	Free public WIFI has improved access to city services.
	Air pollution is not a problem	CCTV cameras have made residents feel safer.
	Medical services provision is satisfactory	A website or app allows residents to effectively monitor air pollution.
	Finding housing with rent equal to 30% or less of a monthly salary is not a problem	Arranging medical appointments online have improved access
Mobility:	Traffic congestion is not a problem.	Car-sharing apps have reduced congestion.
	Public transport is satisfactory	Apps that direct you to an available parking space have reduced journey time.
		Bicycle hiring has reduced congestion
		Online scheduling and ticket sales has made public transport easier to use.
		The city provides information on traffic congestion through mobile phones.
Opportunities: (Work & School)	Employment finding services are readily available.	Online access to job listings has made it easier to find work.
	Most children have access to a good school	IT skills are taught well in schools.
	Lifelong learning opportunities are provided by local institutions	Online services provided by the city has made it easier to start new business
	Businesses are creating new jobs	The current internet speed and reliability meets connectivity needs
	Minorities feel welcome	



	Structure	Technologies
Activities:	Green spaces are satisfactory	Online purchasing of tickets to shows and museums has made it easier to attend.
	Cultural activities (shows, bars, and museums) are satisfactory.	
Governance:	Information on local government decisions are easily accessible	Online public access to city finances has reduced corruption.
	Corruption of city officials is not an issue of concern.	Online voting has increased participation
	Residents contribute to decision making of local government.	An online platform where residents can propose ideas has improved city life
	Residents provide feedback on local governments projects.	Processing identification documents online has reduced waiting times.



B Appendix - ICI indicators

Figure B.1: Overview of the 188 indicators the 2ThinkNow used for the ICI

2THINKNOW SPECIFIC INDICATORS FOR ITHE INNOVATION CITIES™ INDEX			
Architectural Layering	Architectural complexity and layering of a city (architects refer to this as 'grain'), balancing preservation and new building.	Architecture, Planning & Heritage	Construction
Decorative Features	Presence of decorative features in buildings, and related sectors (stone masonry, carpentry, sculpture, street art).	Architecture, Planning & Heritage	Construction
Green Architecture	Cutting edge green buildings, experimental or new sustainable building designs.	Architecture, Planning & Heritage	Construction
History	The age of the city since its first major urban/population incarnation, with older cities having higher tourism value.	Architecture, Planning & Heritage	Construction
Neighborhoods	Quality of decentralised neighbourhoods that are walkable and interconnected.	Architecture, Planning & Heritage	Construction
Tradition of Innovation	A long standing history of trying new innovations and technologies applied to society. This can be differentiated between once avant-garde cities and current new tech adopters.	Architecture, Planning & Heritage	Construction
Vertical Living	Support for vertical development of cities into 'air' as opposed to horizontal development (urban sprawl). Correlates to urban density, but in a balanced way	Architecture, Planning & Heritage	Construction
Walking City	Safely walkable CBD with supporting transport modes.	Architecture, Planning & Heritage	Construction
Cinema & Film	Diversity of cinema offerings including film festivals.	Arts & Culture	Culture
Cultural Festivals	Cities with cultural festivals that attract a multitude of global (Edinburgh Comedy Festival), regional, national and local visits.	Arts & Culture	Culture
Dance & Ballet	Dance companies and ballet companies resident or transient in the city.	Arts & Culture	Culture
Fine Artists	Measuring the number of fine artists, and/or their support structures.	Arts & Culture	Culture
Handcrafts	Measuring support for local crafts and artisan items, substantial evidence needed.	Arts & Culture	Culture
Private Art Galleries	Measuring art dealers and related industries.	Arts & Culture	Culture
Public Art Galleries	Public art galleries can profile a city and support the art in that city.	Arts & Culture	Culture
Public Artworks	Public statues, external 2D and 3D art and external exhibitions or artistic items.	Arts & Culture	Culture
Public Museums	Measuring breadth and depth of museum infrastructure in city.	Arts & Culture	Culture
Satire & Comedy	Measuring support for comedy events, clubs and satire in local city.	Arts & Culture	Culture
Theatre & Plays	Theatres and plays (not movie cinemas) within CBD and surrounds accessible to visitors and residents.	Arts & Culture	Culture
Youth Activities	Data points on breadth of available activities for youth (from pre-school to teenage).	Arts & Culture	Culture
Banking & Finance	Central Bank independence and bank stability. Important: no bank failures.	Banking, Tax & Finance	Financial Services
Card Acceptance	Acceptance of major credit cards across all business and payment types.	Banking, Tax & Finance	Financial Services
Company Tax	Measuring the cities rate of company taxes, with lower company taxes allowing companies to establish in the city, and more easily attract innovative companies.	Banking, Tax & Finance	Financial Services
Crypto Currency	Support and development of crypto currencies in the private sector, and use in the public sector.	Banking, Tax & Finance	Financial Services



Foreign Exchange	Availability of Foreign Exchange in major currencies and formats to business and private travellers.	Banking, Tax & Finance	Financial Services
Multi-National Headquarters	No. of multi-national corporations headquartered within driving distance, and relative importance of proximate multinationals.	Banking, Tax & Finance	Financial Services
Sales Taxes	Is the city a globally competitive destination for low sales taxes, which thus drives greater revenues from product innovation?	Banking, Tax & Finance	Financial Services
Advertising in Media	Measures advertising and media agencies / services in city.	Business & Commerce	Business (B2B)
Business Approach	Measures whether the city is pro-business versus impediments to business.	Business & Commerce	Business (B2B)
Designers	Measures design (with a focus on graphic, business and industrial design) as a core skill of the innovation economy	Business & Commerce	Business (B2B)
Green Business	Potential for multiple green business development in city.	Business & Commerce	Business (B2B)
Industry Diversity	Single-industry focus is dangerous for cities. Measures the diversity of industries that creates global business links, and prevents single industry failure.	Business & Commerce	Business (B2B)
Professional Services	Availability of a range of accounting, consulting, legal and other professional services across all advice areas.	Business & Commerce	Business (B2B)
Public Meeting Spaces	Availability and affordability of meeting spaces of various types	Business & Commerce	Business (B2B)
Video & Film Production	Measures video and film production facilities and achievements relative to other cities.	Business & Commerce	Business (B2B)
Broad Based Innovation (Stable)	Broad Based Innovation measure across the 31 segments. Same basis as our ranking but a 'stable' result across multiple years. Effectively 'past performance'. (Past performance does not indicate future rankings). However, designed for models that need low volatility.	Communications & Technology	High Tech
Broadband Internet	Measuring estimated broadband internet penetration the cities economy relative to competing cities.	Communications & Technology	High Tech
Fixed Phone Network	Measuring the presence of a fixed phone network can be valuable in a crisis, and is still part of global business, even in a mobile world	Communications & Technology	High Tech
Government IT Policy	Government should be a customer of local I.T. and promote trade and exports. Is government supporting I.T. development?	Communications & Technology	High Tech
Internet Users	How many internet users are there in the city relative to competing cities?	Communications & Technology	High Tech
Metaverse Ready	Enabling the environment for the metaverse, and digital augmentation of cities.	Communications & Technology	High Tech
Mobile Phone Network	Measuring how many mobile phone users there are relative to competing cities.	Communications & Technology	High Tech
Nascent Tech	New emerging technologies and support for their eventual emergence.	Communications & Technology	High Tech
Smart Devices	Smart devices provide the mobile infrastructure to create technology that delivers innovative services to each city through apps and mobile browsers.	Communications & Technology	High Tech
Tech Adoption Rate	Rate of early technology adoption within the city - how likely users will adopt new tech.	Communications & Technology	High Tech
Video Gaming & 3D	Local city skills and development of video gaming & 3D technology (used industrially and for consumers as gaming/immersive tech/virtual)	Communications & Technology	High Tech
Wireless Internet	Wireless networks, and world class connectivity are a key part of business and service access in any global cities. Measuring business grade wireless.	Communications & Technology	High Tech
Department Stores	Breadth and range of department stores of a general or specialist nature within city area.	Consumer & Small Business	Consumer & Retail



Ecommerce Sales	The total volume and percentage of ecommerce shoppers within the city.	Consumer & Small Business	Consumer & Retail
Local Markets	Local markets including delicatessens, fresh food and other small shop functions within city.	Consumer & Small Business	Consumer & Retail
Local Shopping	Prevalence of 'high street' shops, and shopping 'streets' attractive to visitors, and/or 'destination' local malls with diverse (as well as global chain) wares.	Consumer & Small Business	Consumer & Retail
Retail Establishment	The ease, predictability and facility of establishing a retail presence.	Consumer & Small Business	Consumer & Retail
Small Retail Clusters	Retail cluster development in small and diverse mixed-use clusters.	Consumer & Small Business	Consumer & Retail
Social Media	Social media is a modern tool and platform for enabling innovation, and low cost global business message communication.	Consumer & Small Business	Consumer & Retail
Embassies & Trade Ambassadors	The presence of trade and diplomatic facilities globally.	Diplomacy & Foreign Affairs	Foreign Affairs
Relationships with Neighbors	Neighbor relationships impact trade and long-run economic wealth.	Diplomacy & Foreign Affairs	Foreign Affairs
Domestic Market Health	The health of the domestic market at a city-level not national based on key industries. Accessible domestic market size estimated for economic area (within own borders).	Economics & Policy	Economics & Policy
Domestic Market Size	Accessible domestic market size estimated for economic area (within own borders).	Economics & Policy	Economics & Policy
Exports	Exports national data points. Also attributed to city level through calculation.	Economics & Policy	Economics & Policy
Foreign Direct Investment	Foreign direct investment is a key metric. Attributed to city level through calculation.	Economics & Policy	Economics & Policy
GDP Per Capita	On a Real basis and PPP (where available). GDP per capita is measured at a city metropolitan area level.	Economics & Policy	Economics & Policy
Imports	Imports at a national level. Attributed to city level through calculation.	Economics & Policy	Economics & Policy
National Account	National account at a national and normalised as a city figure	Economics & Policy	Economics & Policy
Neighbors Market Size	Measures market size of immediate bordering or closest trading entities (states or nations, as applicable).	Economics & Policy	Economics & Policy
Property Prices	Property prices for units and houses, relative to income and value in the inner-city.	Economics & Policy	Economics & Policy
Reserves	National. Foreign exchange and gold reserves normalized into tiers. Includes calculations of city shares of reserves	Economics & Policy	Economics & Policy
Trade Diversity	Measuring the cities diversity of trading partners.	Economics & Policy	Economics & Policy
Trading Partners Economies	Health of major trading partners or free trade bloc for the city.	Economics & Policy	Economics & Policy
Unemployment Rate	Current unemployment rate at a city level, or analyst adjusted estimate based on state/region/national data adjusted for city.	Economics & Policy	Economics & Policy
Wealth Distribution	Equity in the society based on wealth equality, using best recorded Gini coefficients and other proxies.	Economics & Policy	Economics & Policy
Arts Education	Arts education drives arts and design industries. Measuring tertiary and commercial arts institutions.	Education & Science	Education, Science & Technical
Business Education	Mix and availability of business education options, international ranking and quality of business schools.	Education & Science	Education, Science & Technical



Science & Engineering	Science and engineering facilities and competitive position of city.	Education & Science	Education, Science & Technical
Student Population	Student populations size — a proxy for fresh approaches and affordable labor for new business models and experiments.	Education & Science	Education, Science & Technical
Technical & Specialist Innovation	Innovation measured purely as related to a primarily STEM understanding of innovation, without regard to innovation outside the technical (narrow focus view)	Education & Science	Education, Science & Technical
University Breadth	Data points for breadth of university offerings in the city.	Education & Science	Education, Science & Technical
University Commercialization	Measuring ability of universities to commercialize technology.	Education & Science	Education, Science & Technical
Air Cleanliness	Measuring the city air cleanliness, and potential for air quality in given geography.	Environment, Sustainability & Nature	Sustainability
Climate & Weather	Is the weather consistent and conducive to work? Data points measuring the average climate.	Environment, Sustainability & Nature	Sustainability
Emissions	Data points on emissions at a city level where available, or state/national level in some cases.	Environment, Sustainability & Nature	Sustainability
Natural Disasters	Measuring recent history of natural disasters and potential impact of natural disaster such as earthquake, flood, bushfires, cyclones.	Environment, Sustainability & Nature	Sustainability
Nature	Natural environmental assets such as beaches, parks, wetlands which may affect life quality, and drive tourism/eco-tourism.	Environment, Sustainability & Nature	Sustainability
Noise Limiting	Measuring noise causes, and classifying limitation measures.	Environment, Sustainability & Nature	Sustainability
Public Green Areas	Measuring city park protection, and natural and wildlife preservation areas within immediate metropolitan area and inner-city.	Environment, Sustainability & Nature	Sustainability
Water features	The major water features in terms of importance (e.g. major river), range of amenity and cleanliness.	Environment, Sustainability & Nature	Sustainability
Fashion Designers	Measuring fashion designers and fashion events within the city.	Fashion, Clothing & Textiles	Fashion
Cafes & Tea Rooms	Diversity, range and sheer number of cafe's / tea rooms and suitability as multi-purpose business and visitor venues.	Food, Leisure & Hospitality	Hospitality
Fine Restaurants	Quality of restaurants, especially destination restaurants.	Food, Leisure & Hospitality	Hospitality
Food Diversity	Measuring the breadth in diversity of food cuisines.	Food, Leisure & Hospitality	Hospitality
Meal Affordability	Affordability of basic sandwich and beverage (or local equivalent) relative to other cities at a 'walk-in' food establishment.	Food, Leisure & Hospitality	Hospitality
Freight Dependencies	How dependent is the city on foreign freight and what is the potential for blockages, loss or slowing of the supply chain?	Geography	Geo-spatial
Physical location	How favourable is the geographic position of the city, and how favourable the traditional geographic features?	Geography	Geo-spatial
Trade Routes	Where is the city relative to global trade routes, and how does the city work as a current or future juncture in physical trade?	Geography	Geo-spatial
Digital Infrastructure	Digital infrastructure for the development of new skills, tools and opportunities within a secure framework. Allowing the digitalisation of many life functions.	Government & Politics	Government & Public Services



Public Libraries	Libraries and media centers for the public to access free information are crucial to new types of innovation.	Information, News & Publishing	Communications & Media
TV & Radio Networks	The number, existence and independence of local TV and radio networks.	Information, News & Publishing	Communications & Media
Underground Publications	Measures independent underground newspapers, zines or other 'dissent' publications.	Information, News & Publishing	Communications & Media
Web Censorship	Web censorship or control can lead to the blocking of business opportunities, and rampant industrial espionage (an emerging problem).	Information, News & Publishing	Communications & Media
Clerical Wages	Average wage affordability for a senior MS Office qualified clerical worker, and language fluency.	Labour, Employment & Workforce	Recruitment
Digital Skills	Relative skills in the labor force and local firms for deploying digital technologies.	Labour, Employment & Workforce	Recruitment
Education Level	Level of educated workforce availability now and in future.	Labour, Employment & Workforce	Recruitment
Labor Force	Labor force availability % applied to the population to show available workforce.	Labour, Employment & Workforce	Recruitment
Working Visa	Time and cost of achieving working visa for qualified Western nationals.	Labour, Employment & Workforce	Recruitment
Citizen Rights	Restrictions on citizen rights, such as freedom of speech, expression and potential non-structural separation of powers.	Law & Governance	Law
Policing	A community police force that is integrated and achieves lower crime and lower impact crime.	Law & Governance	Law
Separation of Powers	Structural separation and number of branches of government.	Law & Governance	Law
Container Freight	Container port efficiency in tonnage of port nearest to city, and relative ease of reaching port via road/rail.	Logistics & Ports	Logistics
Freight	Multi-modality of freight, and integration of freight modes.	Logistics & Ports	Logistics
Postal System	Postal services availability, and classifying reliability and frequency.	Logistics & Ports	Logistics
Railway Track	Measuring railway track available to a city using calculations.	Logistics & Ports	Logistics
Relative Military	What is the relative military strength of the state, and to a lesser extent, city in real terms?	Military, Defence & Aviation	Defence & Aerospace
Strategic Power	How is the perceived power of the city and it's host nation expressed as an ability to enforce favourable terms of trade?	Military, Defence & Aviation	Defence & Aerospace
Classical Music	Successful choirs, orchestras and classic music groups.	Music & Performance	Music
Music Venues	Measuring if the city has a comparable number and breadth of music venues.	Music & Performance	Music
Nightlife	The quality, variety and mix of nightlife venues and the regulation (or self-policing) of venues.	Music & Performance	Music
Opera House	Is there an Opera House, and what is the degree of support for opera measured by opera infrastructure?	Music & Performance	Music
Popular Music	How many popular musicians or how much support for future contemporary music does the city provide?	Music & Performance	Music
Alternative Population	Evidence of alternative population may be evidence of creative and new ideas.	People, Rights & Families	Community Services
Citizen Privacy	How much privacy is afforded to citizens? Is citizen privacy adequate given current levels of cyber threat and intrusions into the lives of citizens? Privacy allows innovation to flourish whereas constant intervention limits the flourishing of new ideas.	People, Rights & Families	Community Services
Equality of Women	Are women equal (not in number/quotas) but in access measured by actual positions held (such as Mayor)?	People, Rights & Families	Community Services
Littering	Presence of litter and policies to beautify the city.	People, Rights & Families	Community Services
Population	Population of the city indicates size of the market.	People, Rights & Families	Community Services



Protest & Activism	Activism is common in cities that create new ideas, but may also destabilize. Classifying the size and ability of protest.	People, Rights & Families	Community Services
Remote Working	Readiness and ability for remote working (work from home) across the services and administrative sectors. (Manufacturing and agriculture cannot be fully work from home).	People, Rights & Families	Community Services
Wellness of Population	Wellness measures to ensure the health and wellbeing of populations facing challenges from social isolation or economic hardship. This includes 'self-measures' such as private health (not all government programs achieve their stated outcomes, and as such wellness remains a personal responsibility).	People, Rights & Families	Community Services
Crime	Measuring theft and predominately non-violent, non-lethal crime.	Police, Fire & Emergency Response	Emergency Services
Violent Crime	Violent crime rates from murder, rape to assault and punishment effect localized at a city level.	Police, Fire & Emergency Response	Emergency Services
Electricity & Gas	Measures renewable energy, availability and reliability of current electricity supply.	Primary Industries, Services & Energy	Agriculture, Sanitation, Water & Energy
Food Supply	Food quality measured with lower degree of processing, and proximity of farms/food supply to urban centre.	Primary Industries, Services & Energy	Agriculture, Sanitation, Water & Energy
Public Water Supply	Water supply quality and purity, and process of water supply.	Primary Industries, Services & Energy	Agriculture, Sanitation, Water & Energy
Waste Management	Comprehensiveness of waste treatment and recycling programs	Primary Industries, Services & Energy	Agriculture, Sanitation, Water & Energy
Places of Worship	Number of churches, mosques or all places of faithful worship.	Religion, Multi-Culturalism & Charities	NFPs
Resources	Measuring available resources at a national level with best available city allocations.	Resources, Mining, Oil and Gas	Resources
Fitness Facilities	Presence of gyms, and indoor and outdoor facilities for amateur and professional sports.	Sports, Wellbeing & Fitness	Sports
Sports Fanaticism	Level of support for a variety of sports codes, and general sports industry support.	Sports, Wellbeing & Fitness	Sports
Sports Stadiums	Quantity and modernity of stadium infrastructure in or near city.	Sports, Wellbeing & Fitness	Sports
Company Setup	How long does it take to set-up a private company? A more transparent, fast company process is part of entrepreneurial culture.	Start-Ups & Enterprise	Start-Ups & Enterprise
Growth Business Funding	Measuring the breadth and depth of venture capital availability options.	Start-Ups & Enterprise	Start-Ups & Enterprise
Start-Up Economy	Measuring the number of start-up enterprises, and relative strength of the 'start-up' economy at a city level.	Start-Ups & Enterprise	Start-Ups & Enterprise
Start-Up Office Spaces	Are the spaces for start-up or branch office companies to use for first offices? Do spaces allow collaboration? Are they affordable?	Start-Ups & Enterprise	Start-Ups & Enterprise
City Branding	Perception of city brand (commonly referred to as Placemaking or City branding) now drives the potential economic opportunities presented to a city. Includes Ranking.	Tourism & Travel	Travel
Global Airport Connections	How well connected and how close is the airport to other major airports in flying hours?	Tourism & Travel	Travel
Hotel Range	Range of hotels, motels, hostels and accommodation options with a strong mix and bed supply being optimal.	Tourism & Travel	Travel
Inbound Visitors	Number of inbound tourist arrivals in area by all recorded modes.	Tourism & Travel	Travel
International Conferences	Conference popularity and facilities within city, and whether all year round or seasonal.	Tourism & Travel	Travel
International Students	Number and professional mix of international students in city, compared to competing cities.	Tourism & Travel	Travel



Languages	How many languages do the citizens of a city speak? Are those languages international languages, or regional dialects. % of English fluency is a key	Tourism & Travel	Travel
Multi-Lingual	Multi-lingual cities, speaking major global languages, are open to further trade diversity than more isolated single language (or dialect) cultures.	Tourism & Travel	Travel
Tourist Entry	Ease of visitor entry for wealthier national tourists and casual visitors to country.	Tourism & Travel	Travel
Travel Advisories	Travel advisories by one of the UK, US, Canada, Australia or NZ can indicate negative reasons against travel.	Tourism & Travel	Travel
Visitor Entry	Measures visa requirements for entry and classifies degree of burden placed on a potential traveller.	Tourism & Travel	Travel
Visitor Information	Quality and quantity of printed, web and mobile information in English and other languages, that is easily available.	Tourism & Travel	Travel
Airport Transfers	Modes of airport transfer and direct integration and support on city transit networks.	Transport, Roads & Mobility	Transport & Automotive
Automobiles	Road quality and expansiveness, as well as car-sharing and environmental initiatives.	Transport, Roads & Mobility	Transport & Automotive
Bicycle Friendly	Availability of protected and designated bicycle facilities, as well as bicycle support.	Transport, Roads & Mobility	Transport & Automotive
City Transport Infrastructure	Measuring the capability and size of the public transport network in terms of commitment to fixed infrastructure.	Transport, Roads & Mobility	Transport & Automotive
Inter-City Connections	Availability of super-fast/fast-rail (higher benchmarks), rail or alternately airports or buses (lower).	Transport, Roads & Mobility	Transport & Automotive
International Airport	Major modern airport with full facilities measured against best airports.	Transport, Roads & Mobility	Transport & Automotive
Personal Mobility	Mobility via personal mobility devices (micro mobility like scooters etc), rideshare (and to a lesser extent automobile)	Transport, Roads & Mobility	Transport & Automotive
Public City Transport	City Transport Infrastructure - renamed	Transport, Roads & Mobility	Transport & Automotive
Service Delivery	Reliability of services, and amenity of services on an average day.	Transport, Roads & Mobility	Transport & Automotive
Service Frequency	Frequency of services to most suburban areas during the key peak and off-peak times.	Transport, Roads & Mobility	Transport & Automotive
Street Signage	Availability and international language-neutral approaches to signage.	Transport, Roads & Mobility	Transport & Automotive
Streets	Width and layout of streets, major streets that are well known globally.	Transport, Roads & Mobility	Transport & Automotive
Taxi Service	Availability, safety and reliability of taxi service and government policy towards taxis.	Transport, Roads & Mobility	Transport & Automotive
Transport Accessibility	Stated and actual accessibility for fixed and mobile public transport options (rail, buses, metro). Includes assessment of accessibility for People of Determination.	Transport, Roads & Mobility	Transport & Automotive
Transport Automation	Automation of mass-transit, driverless trains, transport infrastructure automation and driverless vehicle technology uptake.	Transport, Roads & Mobility	Transport & Automotive
Transport Coverage	Distribution of multiple transport modes across the city in existing and new suburbs.	Transport, Roads & Mobility	Transport &

500 of the most popular data points can be requested by [this page](#).



C Appendix - Cities Information

Figure C.1: City Information for IMD SCI.

IMD SCI	City	Country	Population
1	Zurich	Switzerland	433 890
2	Oslo	Norway	717 710
3	Canberra	Australia	453 558
4	Geneva	Switzerland	206 569
5	Singapore	Singapore	5 685 807
6	Copenhagen	Denmark	644 431
7	Lausanne	Switzerland	144 122
8	London	United Kingdom	8 799 728
9	Helsinki	Finland	674 500
10	Abu Dhabi	United Arab Emirates	1 202 756
11	Stockholm	Sweden	988 943
12	Dubai	United Arab Emirates	3 355 900
13	Beijing	China	21 893 095
14	Hamburg	Germany	1 853 935
15	Prague	Czech Republic	1 301 432
16	Taipei	Taiwan	2 594 581
17	Seoul	South Korea	9 586 195
18	Amsterdam	Netherlands	934 927
19	Shanghai	China	24 870 895
20	Hong Kong	Hong Kong	7 413 070
21	Munich	Germany	1 487 708
22	Sydney	Australia	4 856 693
23	Vienna	Austria	2 006 134
24	Tallin	Estonia	437 817
25	Riyadh	Saudi Arabia	7 009 120
26	Reykjavik	Iceland	136 894
27	Luxembourg	Luxembourg	134 697
28	Wellington	New Zealand	213 100
29	Bilbao	Spain	345 235
30	Brisbane	Australia	2 488 718
31	Auckland	New Zealand	1 695 200
32	Ljubljana	Slovenia	293 218
33	Melbourne	Australia	4 875 390
34	New York City	United States	8 804 194
35	Madrid	Spain	3 340 176
36	Boston	United States	650 706
37	Berlin	Germany	3 677 472
38	Warsaw	Poland	1 860 281
39	Gothenburg	Sweden	604 616
40	Brussels	Belgium	1 222 637
41	Rotterdam	Netherlands	671 125
42	The Hague	Netherlands	565 701
43	Vancouver	Canada	706 012
44	Dusseldorf	Germany	619 477
45	Busan	South Korea	3 349 016
46	Ottawa	Canada	1 071 868
47	Vilnius	Lithuania	556 490
48	Doha	Qatar	1 186 023
49	Paris	France	2 133 111
50	Washington D.C.	United States	689 546
51	Toronto	Canada	3 025 647



Figure C.2: City Information for IMD SCI

52	Mecca	Saudi Arabia	2 385 509
53	Hanover	Germany	535 932
54	Tianjin	China	11 052 404
55	Jeddah	Saudi Arabia	3 751 722
56	Bratislava	Slovakia	478 040
57	Zaragoza	Spain	736 649
58	Zhuhai	China	2 439 585
59	Riga	Latvia	614 618
60	Shenzhen	China	17 444 609
61	Lyon	France	522 250
62	Nanjing	China	7 519 814
63	Seattle	United States	749 256
64	Hangzhou	China	9 236 032
65	Guangzhou	China	16 096 724
66	Denver	United States	715 538
67	Chicago	United States	2 665 039
68	Los Angeles	United States	3 898 767
69	Dublin	Republic of Ireland	592 713
70	Bordeaux	France	259 809
71	Manchester	United Kingdom	551 938
72	Leeds	United Kingdom	811 953
73	Kuala Lumpur	Malaysia	1 998 600
74	Medina	Saudi Arabia	1 477 047
75	San Francisco	United States	873 959
76	Krakow	Poland	800 653
77	Newcastle upon Tyne	United Kingdom	300 125
78	Bologna	Italy	1 018 346
79	Kiel	Germany	246 243
80	Montreal	Canada	1 791 508
81	Barcelona	Spain	1 655 956
82	Chongqing	China	9 580 819
83	Birmingham	United Kingdom	1 144 919
84	Bangkok	Thailand	5 666 264
85	Lille	France	236 234
86	Tokyo	Japan	9 733 276
87	Glasgow	United Kingdom	631 690
88	Muscat	Oman	1 302 440
89	Budapest	Hungary	1 685 342
90	Philadelphia	United States	1 567 258
91	Milan	Italy	3 247 764
92	Cardiff	United Kingdom	362 310
93	Chengdu	China	13 568 357
94	Tel Aviv	Israel	467 875
95	Osaka	Japan	2 752 412
96	Ankara	Republic of Türkiye	5 186 002
97	Hanoi	Vietnam	3 605 364
98	Phoenix	United States	1 644 409
99	Khobar	Saudi Arabia	658 550
100	Bucharest	Romania	1 716 961

Figures C.1 and C.2 presents the SC rankings by *IMD* and *WeGo* in order from most to least smart. The respective country and population for each city is presented. The populations are retrieved from citypopulation.de.



Figure C.3: City Information for 2ThinkNow ICI.

2ThinkNow ICI	City	Country	Population
1	Tokyo	Japan	9 733 276
2	London	United Kingdom	8 799 728
3	New York City	United States	8 804 194
4	Paris	France	2 133 111
5	Singapore	Singapore	5 685 807
6	Los Angeles	United States	3 898 767
7	Boston	United States	650 706
8	Seoul	South Korea	9 586 195
9	San Francisco	United States	873 959
10	Houston	United States	2 302 878
11	Berlin	Germany	3 677 472
12	Chicago	United States	2 665 039
13	Stockholm	Sweden	988 943
14	Dubai	United Arab Emirates	3 355 900
15	Toronto	Canada	3 025 647
16	Munich	Germany	1 487 708
17	Vienna	Austria	2 006 134
18	Sydney	Australia	4 856 693
19	Madrid	Spain	3 340 176
20	Amsterdam	Netherlands	934 927
21	Seattle	United States	749 256
22	Dallas	United States	1 304 317
23	Melbourne	Australia	4 875 390
24	Montreal	Canada	1 791 508
25	Atlanta	United States	499 127
26	Barcelona	Spain	1 655 956
27	Milan	Italy	3 247 764
28	Beijing	China	21 893 095
29	Vancouver	Canada	706 012
30	Copenhagen	Denmark	644 431
31	Miami	United States	449 514
32	Washington D.C.	United States	689 546
33	Philadelphia	United States	1 567 258
34	Oslo	Norway	717 710
35	Osaka	Japan	2 752 412
36	Dublin	Republic of Ireland	592 713
37	San Diego	United States	1 386 960
38	Brisbane	Australia	2 488 718
39	Helsinki	Finland	674 500
40	Tel Aviv	Israel	467 875
41	Hamburg	Germany	1 853 935
42	Denver	United States	715 538
43	Portland	United States	652 518
44	Austin	United States	974 447
45	Las Vegas	United States	656 274
46	Shanghai	China	24 870 895
47	Detroit	United States	639 115
48	Rome	Italy	2 617 175
49	Brussels	Belgium	1 222 637
50	Newark	United States	311 552
51	Baltimore	United States	585 693



Figure C.4: City Information for 2ThinkNow ICI

52	Taipei	Taiwan	2 594 581
53	Istanbul	Republic of Türkiye	15 244 936
54	Zurich	Switzerland	433 890
55	Phoenix	United States	1 644 409
56	Oakland	United States	440 660
57	Orlando	United States	316 081
58	Hong Kong	Hong Kong	7 413 070
59	Prague	Czech Republic	1 301 432
60	Lisbon	Portugal	545 796
61	Mexico City	Mexico	9 209 944
62	Buenos Aires	Argentina	3 121 707
63	Perth	Australia	2 173 146
64	Kyoto	Japan	1 463 723
65	Basel	Switzerland	568 072
66	Athens	Greece	664 046
67	Sacramento	United States	528 001
68	Frankfurt	Germany	759 224
69	Tampa	United States	398 173
70	Minneapolis	United States	425 096
71	Pittsburgh	United States	302 898
72	San Antonio	United States	1 472 909
73	Riverside	United States	320 764
74	Shenzhen	China	17 444 609
75	Abu Dhabi	United Arab Emirates	1 202 756
76	Moscow	Russia	13 010 112
77	Auckland	New Zealand	1 695 200
78	Budapest	Hungary	1 685 342
79	Oporto	Portugal	237 591
80	Sao Paulo	Brazil	12 396 372
81	Nagoya	Japan	2 332 176
82	Dusseldorf	Germany	619 477
83	Yokohama	Japan	3 777 491
84	Québec	Canada	557 390
85	Stuttgart	Germany	626 275
86	Manchester	United Kingdom	551 938
87	Rotterdam	Netherlands	671 125
88	Lyon	France	522 250
89	Warsaw	Poland	1 860 281
90	Charlotte	United States	897 720
91	Nashville	United States	698 454
92	Cleveland	United States	361 607
93	Gothenburg	Sweden	604 616
94	Santa Ana	United States	308 189
95	Cincinnati	United States	309 513
96	Kansas City	United States	509 297
97	Cologne	Germany	1 073 096
98	Geneva	Switzerland	206 569
99	Fort Lauderdale	United States	183 146
100	Guangzhou	China	16 096 724

Figures C.3 and C.4 presents the SC rankings by 2ThinkNow in order from most to least smart. The respective country and populations for each city is presented. The populations are retrieved from citypopulation.de.

Figure C.5 provides an overview of which continents the cities are located in. The smartness is decreasing downwards for the whole figure.



Figure C.5: Overview of the cities' continents for both indexes, decreasing smartness downwards.

Europe		West-Asia		North-America		Oceania		South-America		East-Asia	
SCI	ICI	SCI	ICI	SCI	ICI	SCI	ICI	SCI	ICI	SCI	ICI
Zurich	London	Dubai	Dubai	New York	New York	Canberra	Sydney		Mexico City	Singapore	Tokyo
Oslo	Paris	Riyadh	Tel Aviv	Boston	Los Angeles	Sydney	Melbourne		Buenos Aires	Beijing	Singapore
Geneva	Berlin	Doha	Istanbul	Vancouver	Boston	Wellington	Brisbane		Sao Paulo	Taipei	Seoul
Copenhagen	Stockholm	Mecca	Abu Dhabi	Ottawa	San Francisco	Brisbane	Perth			Seoul	Beijing
Lausanne	Munich	Jeddah		Washington DC	Houston	Auckland	Auckland			Shanghai	Osaka
London	Vienna	Medina		Toronto	Chicago	Melbourne				Hong Kong	Shanghai
Helsinki	Madrid	Muscat		Seattle	Toronto					Busan	Taipei
Stockholm	Amsterdam	Tel Aviv		Denver	Seattle					Tinjin	Hong Kong
Hamburg	Barcelona	Ankara		Chicago	Dallas					Zhuai	Kyoto
Prague	Milan	Al-Khobar		Los Angeles	Montreal					Shenzhen	Shenzhen
Amsterdam	Copenhagen			San Francisco	Atlanta					Nanjing	Nagoya
Munich	Oslo			Montreal	Vancouver					Hangzhou	Yokohama
Vienna	Dublin			Philadelphia	Miami					Guangzhou	Guangzhou
Taipei	Helsinki			Phoenix	Washington DC					Kuala Lumpur	
Reykjavik	Hamburg				Philadelphia					Chongqing	
Luxembourg	Rome				San Diego					Bangkok	
Bilbao	Brussels				Denver					Tokyo	
Ljubljana	Zürich				Portland					Chengdu	
Madrid	Prague				Austin					Osaka	
Belin	Lisbon				Las Vegas					Hanoi	
Warsaw	Basel				Detroit						
Göteborg	Athens				Newark						
Brussels	Frankfurt				Baltimore						
Rotterdam	Moscow				Phoenix						
The Hague	Budapest				Oakland						
Düsseldorf	Oporto				Orlando						
Vilnius	Düsseldorf				Sacramento						
Paris	Stuttgart				Tampa						
Hannover	Manchester				Minneapolis						
Bratislava	Rotterdam				Pittsburgh						
Zaragoza	Lyon				San Antonio						
Riga	Warsaw				Riverside						
Lyon	Göteborg				Quebec						
Dublin	Cologne				Charlotte						
Bordeaux	Geneva				Nashville						
Manchester					Cleveland						
Leeds					Santa Ana						
Krakow					Cincinnati						
Newcastle					Kansas City						
Bologna					Fort Lauderdale						
Kiel											
Barcelona											
Birmingham											
Lille											
Glasgow											
Budapest											
Milan											
Cardiff											
Bucharest											



D Appendix - Overview of the reviewed literature

Table D.1: Reviewed publications - literature review

Title	Author	Year	Country
Taking City Rankings Seriously: Engaging with Benchmarking Practices in Global Urbanism	Acuto, Pejic, Briggs	2021	Australia
"Smartening sustainable development in cities: Strengthening the theoretical linkage between smart cities and SDGs"	Blasi, Ganzarloi, Noni	2022	Italy
"Climate change 2013 - The Physical Science Basis: Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change."	Cambrigde Univesity Press	2014	United Kingdom
Do smart cities realise their potential for lower carbon dioxide emissions?	Cavada, Hunt, Rogers	2016	United Kingdom
"Economic and policy uncertainty in climate change mitigation: The London Smart City case scenario"	Contreras, Platania	2019	The Netherlands, France
Human-centric, sustainability-driven approach to ranking smart cities worldwide	Dashkevych, Portnov	2023	Israel
"Smart and Sustainable? Positioning Adaptation to Climate Change in the European Smart City"	Fernández, Peek	2020	Spain
Smart cities - Ranking of European medium-sized cities	Giffinger, Fertner, Kramar, Kalasek, Milanovic, Meijers	2007	Austria
The role of rankings in growing city competition	Giffinger, Haindlmaier, Kramar	2010	Austria
"Environmental assessment of Smart City Solutions using a coupled urban metabolism - Life cycle impact assessment approach"	Ipsen, Zimmermann, Nielsen, Birkved	2018	Denmark
The real-time city? Big data and smart urbanism	Kitchin	2013	Ireland
Smarter organizations: insights from a smart city hybrid framework	Lima	2020	France
Modelling the smart city performance	Lombardi, Giordano, Farouh, Yousef	2012	Italy & Egypt



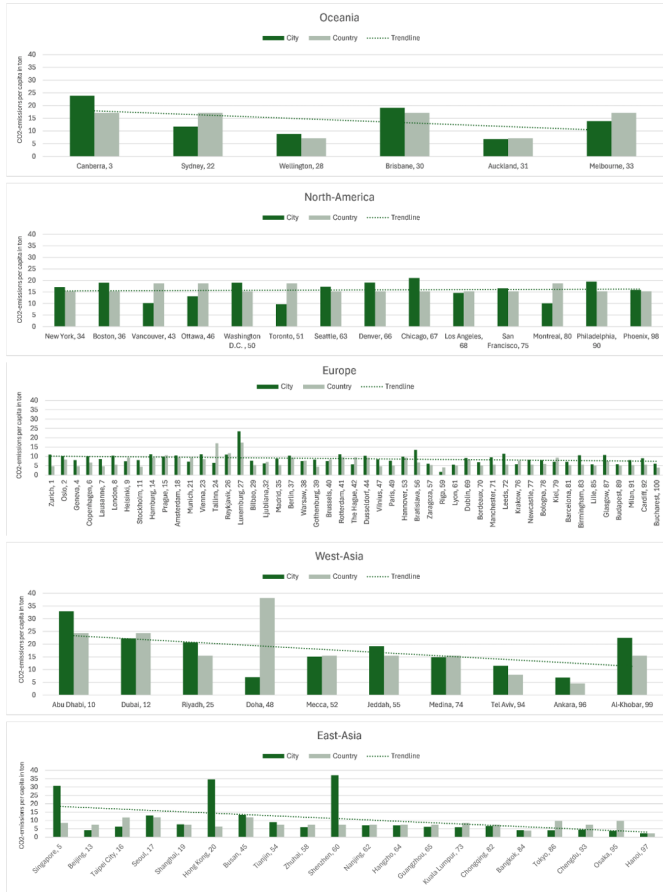
Table D.1: Reviewed publications - literature review

Title	Author	Year	Country
Compilation of Smart Cities Attributes and Quantitative Identification of Mismatch in Rankings	Marzouk	2022	Oman
"What makes a city 'smart' in the Anthropocene? A critical review of smart cities under climate change"	Obringer, Nateghi	2021	USA
"The Role of Internet of Things (IoT) in Smart Cities: Technology Roadmap-oriented Approaches"	Park, Pobil, Kwon	2018	South Korea
Review of Smart City Assessment Tools	Patrão, Moura, Almeida	2020	Portugal
Sensing as a service model for smart cities supported by Internet of Things	Perera, Zaslavsky, Christen, Georgakopoulos	2013	Australia
Information communication technology and electricity consumption in emerging economies	Sadorsky	2012	Canada
Smart city indexes, criteria, indicators and rankings: An in-depth investigation and analysis	Toh	2022	USA
The Concept of Sustainability in Smart City Definitions	Toli, Murtagh	2020	United Kingdom
"Smart Cities and Green Growth: Outsourcing Democratic and Environmental Resilience to the Global Technology Sector"	Viitanen, Kingston	2014	England
Energy savings from Smart Cities: A critical analysis	Wang, Moriarty	2019	United Kingdom, Australia
Evaluating the Impact of Smart City Policy on Carbon Emission Efficiency	Xia, Yu, Zhang	2023	China
Can cities become smart without being sustainable? A systematic review of the literature	Yigitcanlar, Kamruzzaman, Foth, Sabatini-Marques, Costa, Ioppolo	2019	Australia, Brazil, Italy
"Smart cities of the Sunshine State: Status of Queensland's local government areas - 2018 Summary Report"	Yigitcanlar, Kamruzzaman, MD, BUYs, Laurie, Perveen, Sajida	2018	Australia

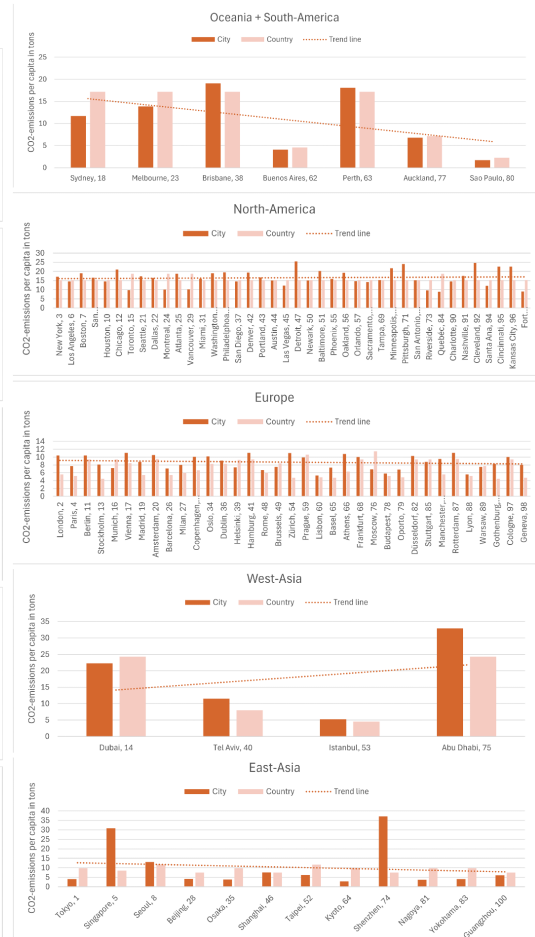


E Appendix - Carbon Footprints for geographical areas

The relation between smartness and carbon footprint was computed in Excel. The results are divided by continents in order to see a clearer connection than what would be shown in one connected figure. For every graph, the smartest ranked city of the continent will be the first one showing on the x-axis, and the smartness decreases to the right. The most interesting element to look at in the individual graphs is the trend line. The trend line shows how the carbon footprint either increases or decreases with the decreasing of smartness.



(a) SCI CF City vs Country



(b) ICI CF City vs Country

Figure E.1: Overview of the CF of the cities compared to the country for both indexes.



F Appendix - Other statistical relationships between CF and smartness

In this appendix, an overview of tested correlations between CF and smartness is presented.

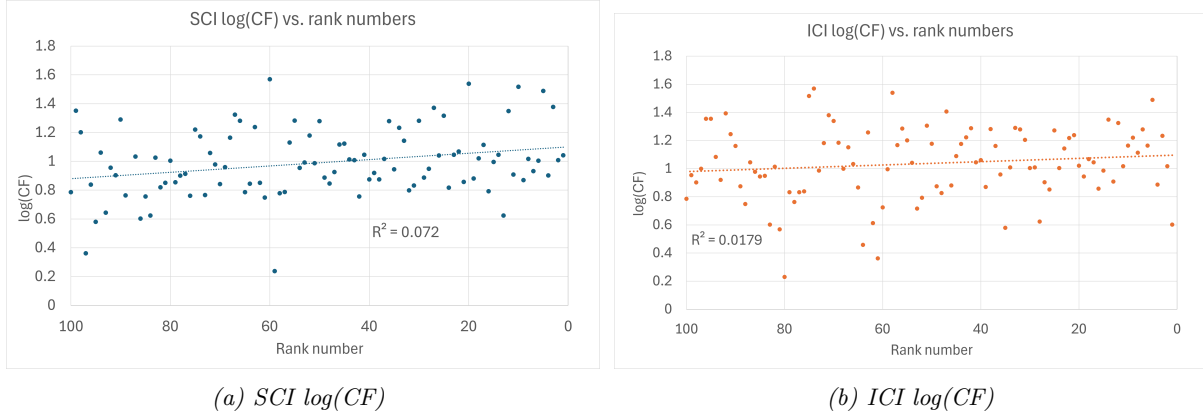


Figure F.1: Logarithmic relationship between CF and rank numbers for both indexes.

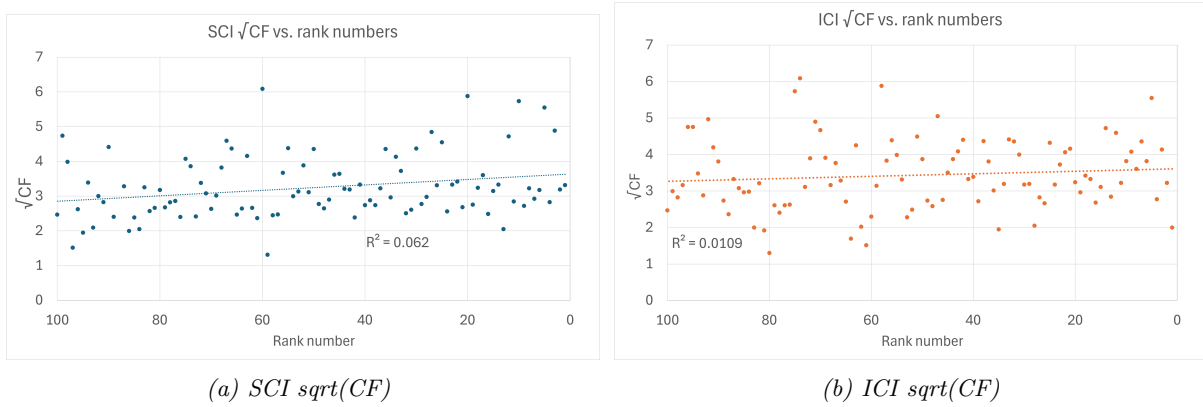


Figure F.2: Square root-relationship between CF and rank numbers for both indexes.

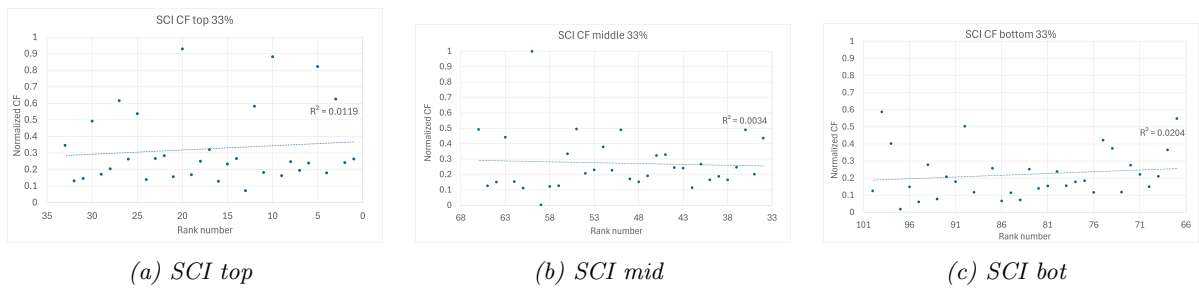


Figure F.3: The relationships between the CFs and the SCI groups' smartness, divided by rank numbers.

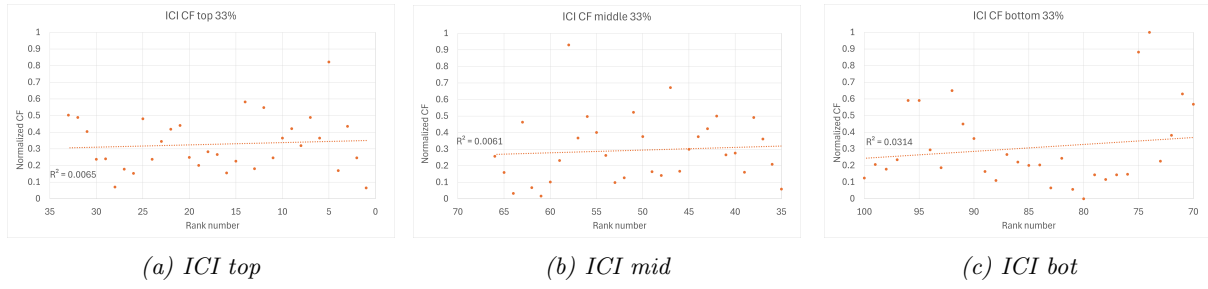


Figure F.4: The relationships between the CFs and the ICI groups' smartness, divided by rank numbers.



G Appendix - Energy mixes for countries and cities

Country	Renewable	Nuclear	Fossil fuels	Total kWh/capita	% Renewable	% Nuclear	% Fossil fuels
Brazil	8431	169	8700	17300	49 %	1 %	50 %
Belgium	6240,0186	9386,54	42769,266	58395,8246	11 %	16 %	73 %
Canada	3128,535	5636,829	65239,92	74005,284	4 %	8 %	88 %
China	4974,1704	733,05255	25344,26	31051,48295	16 %	2 %	82 %
Czechia	3284,8643	7395,684	33561,6	44242,1483	7 %	17 %	76 %
Denmark	13858,966	0	18338,973	32197,939	43 %	0 %	57 %
Estonia	7099,013	0	39405,848	46504,861	15 %	0 %	85 %
Finland	22700,47	11396,982	24848,705	58946,157	39 %	19 %	42 %
France	5270,6436	11409,492	19371,66	36051,7956	15 %	32 %	54 %
Germany	8710,929	1041,2916	31225,268	40977,4886	21 %	3 %	76 %
Hong Kong	111,411865	0	29040,893	29152,30487	0 %	0 %	100 %
Hungary	2430,8186	3968,923	20260,748	26660,4896	9 %	15 %	76 %
Iceland	139521,33	0	0	139521,33	100 %	0 %	0 %
Ireland	7601,9966	0	30159,404	37761,4006	20 %	0 %	80 %
Israel	2175,225	0	31467,791	33643,016	6 %	0 %	94 %
Italy	4798	0	24111,465	28909,465	17 %	0 %	83 %
Japan	5003,856	1044,9875	33936,066	39984,9095	13 %	3 %	85 %
Latvia	6546,746	0	15667,594	22214,34	29 %	0 %	71 %
Lithuania	2891,2927	0	20259,76	23151,0527	12 %	0 %	88 %
Luxembourg	6546,746	0	53787,58	60334,326	11 %	0 %	89 %
Mexico	1702	213	17094	19009	9 %	1 %	90 %
Malaysia	3226,491	0	36360,508	39586,999	8 %	0 %	92 %
Netherlands	8051,7456	592,2688	47356,742	56000,7564	14 %	1 %	85 %
New Zealand	19355,164	0	25584,105	44939,269	43 %	0 %	57 %
Norway	69426,695	0	27499,533	96926,228	72 %	0 %	28 %
Oman	0	0	89850,02	89850,02	0 %	0 %	100 %
Portugal	7269	0	17825	25094	29 %	0 %	71 %
Poland	2817,1733	0	7248,246	10065,4193	28 %	0 %	72 %
Qatar	0	0	193665,31	193665,31	0 %	0 %	100 %
Russia	3722	3867	47871	55460	7 %	7 %	86 %
Romania	3321,3687	1411,162	13614,338	18346,8687	18 %	8 %	74 %
Saudi Arabia	0	0	87647,36	87647,36	0 %	0 %	100 %
Singapore	0	0	146257,7	146257,7	0 %	0 %	100 %
Slovakia	3491,5803	7046,819	23349,29	33887,6893	10 %	21 %	69 %
Slovenia	5347,2437	6615,506	22428,342	34391,0917	16 %	19 %	65 %
South Korea	2939,291	8500,325	56686,57	68126,186	4 %	12 %	83 %
Spain	7070,7124	3082,4805	23462,137	33615,3299	21 %	9 %	70 %
Sweden	31948,436	12223,56	15754,809	59926,805	53 %	20 %	26 %
Switzerland	11031,041	6615,6626	15704,048	33350,7516	33 %	20 %	47 %
Taiwan	2452,8599	2487,2866	50666,402	55606,5485	4 %	4 %	91 %
Thailand	1437,4113	0	18179,367	19616,7783	7 %	0 %	93 %
Turkey	4301,231	0	18522,918	22824,149	19 %	0 %	81 %
UAE	0	5327,5034	141325,73	146653,2334	0 %	4 %	96 %
Greece	6049	0	24361	30410	20 %	0 %	80 %
GBR	5820,2104	1768,5579	22509,117	30097,8853	19 %	6 %	75 %
USA	8912,268	6006,1494	63835,86	78754,2774	11 %	8 %	81 %
Vietnam	3473,4663	0	9509,55	12983,0163	27 %	0 %	73 %
Argentina	2819	411	18765	21995	13 %	2 %	85 %
Australia	9172,81	0	54286	63458,81	14 %	0 %	86 %
Austria	15626,23	0	27059	42685,23	37 %	0 %	63 %
Total	493679,4616	118182,0629	1923075,803	2534937,327	19 %	5 %	76 %

Figure G.1: Full overview of the energy mixes in the countries represented in the study.



Figure G.2: Full overview of the energy mixes for the smart cities for both indexes.

(a) SCI

City, smartness	IMD SMART CITY INDEX				Footprint (normalized)
	Renewable %	Nuclear %	Fossil fuels %		
Zurich, 1	33 %	20 %	47 %		0.264166902
Oslo, 2	72 %	0 %	28 %		0.24161263
Canberra, 3	14 %	0 %	86 %		0.62700874
Geneva, 4	33 %	20 %	47 %		0.179306456
Singapore, 5	0 %	0 %	100 %		0.822385114
Copenhagen, 6	43 %	0 %	57 %		0.238793346
Lausanne, 7	33 %	20 %	47 %		0.195094446
London, 8	19 %	6 %	75 %		0.247251198
Helsinki, 9	39 %	19 %	42 %		0.162672681
Abu Dhabi, 10	0 %	4 %	96 %		0.881590076
Stockholm, 11	53 %	20 %	26 %		0.182407668
Dubai, 12	0 %	4 %	96 %		0.582745983
Beijing, 13	16 %	2 %	82 %		0.072455596
Hamburg, 14	21 %	3 %	76 %		0.266986186
Prague, 15	7 %	17 %	76 %		0.233154779
Taipei City, 16	4 %	4 %	91 %		0.128841274
Seoul, 17	4 %	12 %	83 %		0.32055258
Amsterdam, 18	14 %	1 %	85 %		0.250070482
Shanghai, 19	16 %	2 %	82 %		0.168311249
Hong Kong, 20	0 %	0 %	100 %		0.929517902
Munich, 21	21 %	3 %	76 %		0.157034113
Sydney, 22	14 %	0 %	86 %		0.283901889
Vienna, 23	37 %	0 %	63 %		0.266986186
Tallinn, 24	0 %	0 %	100 %		0.139272625
Riyadh, 25	0 %	0 %	100 %		0.53763744
Reykjavik, 26	100 %	0 %	0 %		0.263321116
Luxembourg, 27	11 %	0 %	89 %		0.616295461
Wellington, 28	43 %	0 %	57 %		0.204398083
Bilbao, 29	21 %	9 %	70 %		0.171130533
Brisbane, 30	53 %	20 %	26 %		0.492528898
Auckland, 31	28 %	0 %	72 %		0.145756978
Ljubljana, 32	16 %	19 %	65 %		0.131096701
Melbourne, 33	18 %	8 %	74 %		0.345926135
New York, 34	11 %	8 %	81 %		0.43614322
Madrid, 35	21 %	9 %	70 %		0.202142656
Boston, 36	14 %	0 %	86 %		0.489709614
Berlin, 37	21 %	3 %	76 %		0.247251198
Warsaw, 38	28 %	0 %	72 %		0.165491965
Gothenburg, 39	53 %	20 %	26 %		0.188328165
Brussels, 40	11 %	16 %	73 %		0.165491965
Rotterdam, 41	14 %	1 %	85 %		0.266986186
The Hague, 42	14 %	1 %	85 %		0.114744855
Vancouver, 43	4 %	8 %	88 %		0.24161263
Düsseldorf, 44	21 %	3 %	76 %		0.244995771
Busan, 45	4 %	12 %	83 %		0.328728503
Ottawa, 46	4 %	8 %	88 %		0.323371864
Vilnius, 47	15 %	0 %	85 %		0.191711305
Doha, 48	0 %	0 %	100 %		0.151677474
Paris, 49	15 %	32 %	54 %		0.171130533
Washington D.C., 50	11 %	8 %	81 %		0.489709614
Toronto, 51	4 %	8 %	88 %		0.227516211
Mecca, 52	0 %	0 %	100 %		0.379757542
Hannover, 53	21 %	3 %	76 %		0.230617423
Tianjin, 54	16 %	2 %	82 %		0.207781224
Jeddah, 55	0 %	0 %	100 %		0.495348182
Bratislava, 56	10 %	21 %	69 %		0.334367071
Zaragoza, 57	21 %	9 %	70 %		0.126867776
Zhuhai, 58	16 %	2 %	82 %		0.123202707
Riga, 59	29 %	0 %	71 %		0.002819284
Shenzhen, 60	16 %	2 %	82 %		1
Lyon, 61	15 %	32 %	54 %		0.111925571
Nanjing, 62	16 %	2 %	82 %		0.154214829
Seattle, 63	11 %	8 %	88 %		0.441781787
Hangzhou, 64	16 %	2 %	82 %		0.151395546
Guangzhou, 65	16 %	2 %	82 %		0.12602199
Denver, 66	11 %	8 %	88 %		0.492528898
Chicago, 67	11 %	8 %	88 %		0.548914576
Los Angeles, 68	11 %	8 %	88 %		0.365661122
Dublin, 69	20 %	0 %	80 %		0.210600507
Bordeaux, 70	15 %	32 %	54 %		0.149985904
Manchester, 71	19 %	6 %	75 %		0.221877643
Leeds, 72	19 %	6 %	75 %		0.276007894
Kuala Lumpur, 73	8 %	0 %	92 %		0.118409924
Medina, 74	0 %	0 %	100 %		0.374118974
San Francisco, 75	11 %	8 %	88 %		0.422610657
Krakow, 76	9 %	0 %	91 %		0.116718354
Newcastle, 77	19 %	6 %	75 %		0.185226952
Bologna, 78	17 %	0 %	83 %		0.178460671
Kiel, 79	21 %	3 %	76 %		0.1559064
Montreal, 80	4 %	8 %	88 %		0.238793346
Barcelona, 81	21 %	9 %	70 %		0.154214829
Chongqing, 82	16 %	2 %	82 %		0.14011841
Birmingham, 83	16 %	6 %	75 %		0.252889766
Bangkok, 84	7 %	0 %	93 %		0.072455596
Little, 85	15 %	32 %	54 %		0.114744855
Tokyo, 86	13 %	3 %	85 %		0.066817028
Glasgow, 87	19 %	6 %	75 %		0.257964477
Muscat, 88	0 %	0 %	100 %		0.045954328
Budapest, 89	9 %	15 %	76 %		0.117564139
Philadelphia, 90	11 %	8 %	88 %		0.503806033
Milan, 91	17 %	0 %	83 %		0.179588385
Cardiff, 92	19 %	6 %	75 %		0.208627009
Chengdu, 93	16 %	2 %	82 %		0.078094164
Tel Aviv, 94	6 %	0 %	94 %		0.278263321
Osaka, 95	13 %	3 %	85 %		0.061178461
Ankara, 96	19 %	0 %	81 %		0.148576262
Hanoi, 97	27 %	0 %	73 %		0.018889202
Phoenix, 98	11 %	8 %	88 %		0.402311813
Al-Khobar, 99	0 %	0 %	100 %		0.587538765
Bucharest, 100	18 %	8 %	74 %		0.12602199



City, smartness	INNOVATION CITIES INDEX			
	Renewable %	Nuclear %	Fossil fuels %	Footprint (normalized)
Tokyo, 1	13 %	3 %	85 %	0.064971751
London, 2	19 %	6 %	75 %	0.245762712
New York, 3	11 %	8 %	88 %	0.435028249
Paris, 4	15 %	32 %	54 %	0.169491525
Singapore, 5	0 %	0 %	100 %	0.822033898
Los Angeles, 6	11 %	8 %	88 %	0.36440678
Boston, 7	11 %	8 %	88 %	0.488700565
Seoul, 8	4 %	12 %	83 %	0.31920904
San Francisco, 9	11 %	8 %	88 %	0.421468927
Houston, 10	11 %	8 %	88 %	0.36440678
Berlin, 11	21 %	3 %	76 %	0.245762712
Chicago, 12	11 %	8 %	88 %	0.548022599
Stockholm, 13	53 %	20 %	26 %	0.18079096
Dubai, 14	0 %	4 %	96 %	0.581920904
Toronto, 15	4 %	8 %	88 %	0.225988701
Munich, 16	21 %	3 %	76 %	0.155367232
Vienna, 17	37 %	0 %	63 %	0.265536723
Sydney, 18	18 %	8 %	74 %	0.282485876
Madrid, 19	21 %	9 %	70 %	0.200564972
Amsterdam, 20	14 %	1 %	85 %	0.248587571
Seattle, 21	11 %	8 %	88 %	0.440677966
Dallas, 22	11 %	8 %	88 %	0.418079096
Melbourne, 23	18 %	8 %	74 %	0.344632768
Montreal, 24	4 %	8 %	88 %	0.237288136
Atlanta, 25	11 %	8 %	88 %	0.480225989
Barcelona, 26	21 %	9 %	70 %	0.152542373
Milan, 27	17 %	0 %	83 %	0.177966102
Beijing, 28	16 %	2 %	82 %	0.070621469
Vancouver, 29	4 %	8 %	88 %	0.240112994
Copenhagen, 30	43 %	0 %	57 %	0.237288136
Miami, 31	11 %	8 %	88 %	0.403954802
Washington DC, 32	11 %	8 %	88 %	0.488700565
Philadelphia, 33	11 %	8 %	88 %	0.502824859
Oslo, 34	72 %	0 %	28 %	0.240112994
Osaka, 35	13 %	3 %	85 %	0.059322034
Dublin, 36	20 %	0 %	80 %	0.209039548
San Diego, 37	11 %	8 %	88 %	0.361581921
Brisbane, 38	18 %	8 %	74 %	0.491525424
Helsinki, 39	39 %	19 %	42 %	0.161016949
Tel Aviv, 40	6 %	0 %	94 %	0.276836158
Hamburg, 41	21 %	3 %	76 %	0.265536723
Denver, 42	11 %	8 %	88 %	0.5
Portland, 43	11 %	8 %	88 %	0.423728814
Austin, 44	11 %	8 %	88 %	0.375706215
Las Vegas, 45	11 %	8 %	88 %	0.299435028
Shanghai, 46	16 %	2 %	82 %	0.166666667
Detroit, 47	11 %	8 %	88 %	0.672316384
Rome, 48	17 %	0 %	83 %	0.141242938
Brussels, 49	11 %	16 %	73 %	0.163841808
Newark, 50	11 %	8 %	88 %	0.376271186
Baltimore, 51	11 %	8 %	88 %	0.52259887
Taipei, 52	4 %	4 %	91 %	0.127118644
Istanbul, 53	19 %	0 %	81 %	0.098870056
Zürich, 54	33 %	20 %	47 %	0.262711864
Phoenix, 55	11 %	8 %	88 %	0.401129944
Oakland, 56	11 %	8 %	88 %	0.497175141
Orlando, 57	11 %	8 %	88 %	0.367231638
Hong Kong, 58	0 %	0 %	100 %	0.929378531
Prague, 59	7 %	17 %	76 %	0.231638418
Lisbon, 60	29 %	0 %	71 %	0.101694915
Mexico City, 61	9 %	1 %	90 %	0.016949153
Buenos Aires, 62	13 %	2 %	85 %	0.06779661
Perth, 63	18 %	8 %	74 %	0.46299435
Kyoto, 64	13 %	3 %	85 %	0.033050847
Basel, 65	33 %	20 %	47 %	0.15960452
Athens, 66	20 %	0 %	80 %	0.257062147
Sacramento, 67	11 %	8 %	88 %	0.353107345
Frankfurt, 68	21 %	3 %	76 %	0.234463277
Tampa, 69	11 %	8 %	88 %	0.384180791
Minneapolis, 70	11 %	8 %	88 %	0.56779661
Pittsburgh, 71	11 %	8 %	88 %	0.629943503
San Antonio, 72	11 %	8 %	88 %	0.381355932
Riverside, 73	11 %	8 %	88 %	0.225706215
Shenzhen, 74	16 %	2 %	82 %	1
Abu Dhabi, 75	0 %	4 %	96 %	0.881355932
Moscow, 76	7 %	7 %	86 %	0.146892655
Auckland, 77	28 %	0 %	72 %	0.144067797
Budapest, 78	9 %	15 %	76 %	0.115819209
Oporto, 79	29 %	0 %	71 %	0.144067797
Sao Paulo, 80	49 %	1 %	50 %	0
Nagoya, 81	13 %	3 %	85 %	0.056497175
Düsseldorf, 82	21 %	3 %	76 %	0.243502825
Yokohama, 83	13 %	3 %	85 %	0.064971751
Québec, 84	4 %	8 %	88 %	0.203389831
Stuttgart, 85	21 %	3 %	76 %	0.200564972
Manchester, 86	19 %	6 %	75 %	0.220338983
Rotterdam, 87	14 %	1 %	85 %	0.265536723
Lyon, 88	15 %	32 %	54 %	0.110169492
Warsaw, 89	28 %	0 %	72 %	0.163841808
Charlotte, 90	11 %	8 %	88 %	0.361581921
Nashville, 91	11 %	8 %	88 %	0.449152542
Cleveland, 92	11 %	8 %	88 %	0.649717514
Gothenburg, 93	53 %	20 %	26 %	0.186723164
Santa Ana, 94	11 %	8 %	88 %	0.294067797
Cincinnati, 95	11 %	8 %	88 %	0.59039548
Kansas City, 96	11 %	8 %	88 %	0.59039548
Cologne, 97	21 %	3 %	76 %	0.234463277
Geneva, 98	33 %	20 %	47 %	0.177683616
Fort Lauderdale, 99	11 %	8 %	88 %	0.205932203
Guangzhou, 100	16 %	2 %	82 %	0.124293785

(a) ICI



H Appendix - Collection of MVRAs

Figure H.1 shows the main findings for the MVRAs done, with an additional summarizing comment for each dependent variable. In total, 50 analysis has been executed, 25 for each index. Every analyzed variable in this study has been tested as the dependent variable for both indexes, with each independent variable being excluded once for ever case. The excluded variables are marked with a cross. The following list clarifies the meaning of each abbreviation used:

- GDP: Gross domestic product (USD per capita)
- CF: Carbon footprint (tons CO₂ per capita)
- S: Rank of smartness from 1-100
- E: Education level from 0-1
- T: Temperature (degrees Celsius)



Index	Dependent variable	Independent variables					Adjusted R-squared	Significance-F	Significant variables	P-value	Comment
SCI	GDP in USD	GDP	CF	S	E	T	0,31127209	2,00663E-06	CF E	0,012185 0,0030256	The R-squared values are about the same for both indexes. The Significance-F is within the cut-off limit for all cases. For the SCI, CF and E are frequent significant variables. For the ICI, S and E are more frequent. This makes E a frequent significant variable for both indexes.
		GDP	CF	S	E	T	0,25980786	1,11858E-05	E	0,00013313	
		GDP	CF	S	E	T	0,30169278	1,34E-06	CF E	0,006739 0,002334	
		GDP	CF	S	E	T	0,23411599	3,85991E-05	CF T	0,0005167 0,004354	
		GDP	CF	S	E	T	0,31532047	6,50E-07	CF E	0,015524 0,000049	
ICI		GDP	CF	S	E	T	0,3188833	1,35586E-06	S E	0,033228 0,00013	
		GDP	CF	S	E	T	0,30586013	1,07E-06	S E	0,03081796 0,00009916	
		GDP	CF	S	E	T	0,28520659	3,14E-06	E	0,00009413	
		GDP	CF	S	E	T	0,17987064	0,000454868	CF S T	0,007086 0,025235 0,002783	
		GDP	CF	S	E	T	0,30477721	1,14E-06	S E	0,03567 0,000004	
SCI	Carbon Footprint in tCO2 per capita	GDP	CF	S	E	T	0,19871221	0,0003878	GDP T	0,012185 0,00069	The R-squared values are generally higher for the SCI. For both indexes, the R-squared values are very low and the Significance-F are generally higher when T is excluded. For the ICI, it is too high to look at the p-values. GDP and T are the most frequent significant variables.
		GDP	CF	S	E	T	0,1388371	0,002590833	E T	0,0027277 0,000836	
		GDP	CF	S	E	T	0,202972	0,0001629	GDP T	0,00674 0,00087	
		GDP	CF	S	E	T	0,17363186	0,000596676	GDT T	0,0005167 0,003768	
		GDP	CF	S	E	T	0,07531111	0,031045427	GDP	0,0155243	
ICI		GDP	CF	S	E	T	0,14423582	0,003565452	T	0,0014863	
		GDP	CF	S	E	T	0,12787334	0,004050888	E T	0,003911 0,002760	
		GDP	CF	S	E	T	0,15551294	0,00129407	T	0,00138658	
		GDP	CF	S	E	T	0,11521289	0,006723991	GDP T	0,0070860 0,0044724	
		GDP	CF	S	E	T	0,03134118	0,146946741	-	-	
SCI	Level of smartness from 1-100	GDP	CF	S	E	T	0,0195353	0,246220387	-	-	The R-squared values are extremely low for every case, and negative for the ICI with the GDP excluded. The only significant variable is T for the SCI when E is excluded. Elsewhere, the Significance-F values falls outside the cut-off limit for most ICI-cases.
		GDP	CF	S	E	T	0,08228401	0,023943913	-	-	
		GDP	CF	S	E	T	0,09968553	0,0123458	-	-	
		GDP	CF	S	E	T	0,10685848	0,009342085	T	0,0355433	
		GDP	CF	S	E	T	0,06945886	0,038507233	-	-	
ICI		GDP	CF	S	E	T	0,09487315	0,002590833	-	-	
		GDP	CF	S	E	T	-0,0289422	0,847787545	-	-	
		GDP	CF	S	E	T	0,0324557	0,141590122	-	-	
		GDP	CF	S	E	T	0,03157069	0,145820239	-	-	
		GDP	CF	S	E	T	0,03020003	0,152666743	-	-	
SCI	Education level from 0-1	GDP	CF	S	E	T	0,43674707	1,55E-09	GDP T	0,0030256 0,000002	The R-squared values are higher for the SCI, and all of the Significance-F values are within the cut-off level for both indexes. GDP is a frequent significant variable for all cases where it is considered for both indexed. The same goes for T when looking at the SCI.
		GDP	CF	S	E	T	0,37364756	2,48E-08	CF T	0,002727 0,00000003	
		GDP	CF	S	E	T	0,41911723	1,54E-09	GDP T	0,00013313 0,000009	
		GDP	CF	S	E	T	0,44420544	3,02E-10	GDP T	0,00233 0,0000008	
		GDP	CF	S	E	T	0,24347925	2,47115E-05	GDP	4,9134E-05	
ICI		GDP	CF	S	E	T	0,30605915	2,62E-06	GDP T	0,0001301 0,022389	
		GDP	CF	S	E	T	0,16442915	0,000886382	CF T	0,0039105 0,00062	
		GDP	CF	S	E	T	0,28252441	3,59E-06	GDP	9,1575E-06	
		GDP	CF	S	E	T	0,31457742	6,77E-07	GDP T	0,000094 0,02043	
		GDP	CF	S	E	T	0,26496654	8,67E-06	GDP	4,02E-06	

Figure H.1: Overview of all conducted MVRAs



I Appendix - Complete Data Collection for both Indexes

Figure I.1 and I.2 presents every value that is used in this study to conduct the analysis for both indexes.

SCI						
City	Smartness rank	CF per capita (t CO2)	CF for country (t CO2)	Average temperature	Education level from 0-1	GDP per capita (USD)
Zurich, 1	1	11	4.74	9.7	0.902	76319
Oslo, 2	2	10.2	8.3	5.9	0.912	130942,8599
Canberra, 3	3	23.87	17.15	12.8	0.896	58623
Geneva, 4	4	7.99	4.74	10	0.902	77386
Singapore, 5	5	30.8	8.47	26.7	0.771	-
Copenhagen, 6	6	10.1	6.66	8.9	0.909	62132
Lausanne, 7	7	8.55	4.74	11.1	0.902	54977
London, 8	8	10.4	5.6	10.8	0.901	60927
Helsinki, 9	9	7.4	9.31	6.1	0.907	56831
Abu Dhabi, 10	10	32.9	24.33	27.9	0.751	-
Stockholm, 11	11	8.1	4.49	7.3	0.885	68720
Dubai, 12	12	22.3	24.33	28.2	0.751	-
Beijing, 13	13	4.2	7.44	12.7	0.573	30178
Hamburg, 14	14	11.1	9.42	9.8	0.917	57359
Prague, 15	15	9.9	10.62	9.8	0.868	60032
Taipei City, 16	16	6.2	11.73	21.1	0.573	-
Seoul, 17	17	13	11.77	11.3	0.799	-
Amsterdam, 18	18	10.5	9.54	10.7	0.875	67167
Shanghai, 19	19	7.6	7.44	16.6	0.573	23373
Hong Kong, 20	20	34.6	6.33	22.6	0.802	-
Munich, 21	21	7.2	9.42	8.8	0.917	79635
Sydney, 22	22	11.7	17.15	18	0.896	46320
Vienna, 23	23	11.1	8.44	9.9	0.832	51275
Tallinn, 24	24	6.57	17.02	6.5	0.876	46295
Riyadh, 25	25	20.7	15.47	26.2	0.676	-
Reykjavik, 26	26	10.97	11.69	4.3	0.938	-
Luxembourg, 27	27	23.49	17.39	9.7	0.794	107261
Wellington, 28	28	8.88	7.13	12.5	0.914	46078
Bilbao, 29	29	7.7	5.42	13.5	0.717	39646
Brisbane, 30	30	19.1	17.15	20	0.896	41153
Auckland, 31	31	6.8	7.13	15.5	0.914	43839
Ljubljana, 32	32	6.28	7.04	10.2	0.898	-
Melbourne, 33	33	13.9	17.15	14.8	0.896	41736
New York, 34	34	17.1	15.32	11.9	0.883	85563
Madrid, 35	35	8.8	5.42	14.5	0.717	45013
Boston, 36	36	19	15.32	10.1	0.883	93663
Berlin, 37	37	10.4	9.42	10.1	0.917	46299
Warsaw, 38	38	7.5	7.7	5.3	0.845	66746
Gothenburg, 39	39	8.31	4.49	8.1	0.885	46808
Brussels, 40	40	7.5	4.37	10.7	0.859	57258
Rotterdam, 41	41	11.1	9.54	10.8	0.875	52518
The Hague, 42	42	5.7	9.54	10.9	0.875	-
Vancouver, 43	43	10.2	18.72	9.5	0.893	45071
Düsseldorf, 44	44	10.32	9.42	10.9	0.917	68028
Busan, 45	45	13.29	11.77	13.8	0.799	-
Ottawa, 46	46	13.1	18.72	6.9	0.893	43274
Vilnius, 47	47	8.43	4.96	7.2	0.87	50541
Doha, 48	48	7.01	38.14	27.5	0.607	-
Paris, 49	49	7.7	5.18	11.7	0.762	71346
Washington D.C., 50	50	19	15.32	13.7	0.883	77580
Toronto, 51	51	9.7	18.72	8.7	0.893	44095
Mexico, 52	52	15.1	15.47	28.6	0.676	-
Hannover, 53	53	9.81	9.42	10.3	0.917	53154
Tianjin, 54	54	9	7.44	13.3	0.573	275
Jeddah, 55	55	19.2	15.47	28.1	0.676	-
Bratislava, 56	56	13.49	6.78	10.8	0.819	74562
Zaragoza, 57	57	6.13	5.42	15.6	0.717	37358
Zhuhai, 58	58	6	7.44	22.9	0.573	23033
Riga, 59	59	1.73	4.13	7.6	0.872	38701
Shenzhen, 60	60	37.1	7.44	22.4	0.573	22994
Lyon, 61	61	5.6	5.18	12	0.762	54225
Nanjing, 62	62	7.1	7.44	16.1	0.573	28407
Seattle, 63	63	17.3	15.32	10.8	0.883	98051
Hangzhou, 64	64	7	7.44	17.1	0.573	25256
Guangzhou, 65	65	6.1	7.44	22.4	0.573	22504
Denver, 66	66	19.1	15.32	9	0.883	68836
Chicago, 67	67	21.1	15.32	10.2	0.883	67733
Los Angeles, 68	68	14.6	15.32	17.6	0.883	61920
Dublin, 69	69	9.1	8.29	9.4	0.856	102486
Bordeaux, 70	70	6.95	5.18	13.8	0.762	42454
Manchester, 71	71	9.5	5.6	9.4	0.901	36565
Leeds, 72	72	11.42	5.6	9.4	0.901	33231
Kuala Lumpur, 73	73	5.83	8.45	25.8	0.638	-
Medina, 74	74	14.9	15.47	18.7	0.676	-
San Francisco, 75	75	16.62	15.32	19.6	0.883	130744
Krakow, 76	76	5.77	7.7	9	0.845	39379
Newcastle, 77	77	8.2	5.6	9.3	0.901	29010
Bologna, 78	78	7.96	5.96	14.3	0.727	49609
Kiel, 79	79	7.16	9.42	9.5	0.917	44668
Montreal, 80	80	10.1	18.72	7.1	0.893	38491
Barcelona, 81	81	7.1	5.42	15.5	0.717	39459
Chongqing, 82	82	6.6	7.44	18.3	0.573	2721
Birmingham, 83	83	10.6	5.6	9.7	0.901	31105
Bangkok, 84	84	4.2	3.84	27.7	0.608	-
Lille, 85	85	5.7	5.18	11	0.762	36812
Tokyo, 86	86	4	9.76	15.2	0.829	51143
Glasgow, 87	87	10.78	7.59	8.1	0.901	34758
Muscat, 88	88	-	19.97	27.3	0.698	46774
Budapest, 89	89	5.8	5.2	11.1	0.802	67868
Philadelphia, 90	90	19.5	15.32	18.1	0.883	56822
Milan, 91	91	8	5.96	13	0.727	31515
Cardiff, 92	92	9.03	5.6	10.4	0.883	18997
Chengdu, 93	93	4.4	7.44	17.3	0.573	-
Tel Aviv, 94	94	11.5	7.99	20.5	0.835	41250
Osaka, 95	95	3.8	9.76	15.8	0.829	40009
Ankara, 96	96	6.9	4.54	11.5	0.68	-
Hanoi, 97	97	2.3	2.21	23.6	0.541	51395
Phoenix, 98	98	15.9	15.32	23.2	0.883	-
Al-Khobar, 99	99	22.47	15.47	26.5	0.676	61718
Bucharest, 100	100	6.1	3.98	12.2	0.729	-

Figure I.1: All values used for the SCI.



ICI						
City	Smartness rank	CF per capita (t CO ₂)	CF for country (t CO ₂)	Average temperature	Education level from 0-1	GDP per capita (USD)
Tokyo, 1	1	4	9,76	15,2	0,829	51143
London, 2	2	10,4	5,6	10,8	0,901	60927
New York, 3	3	17,1	15,32	11,9	0,883	85563
Paris, 4	4	7,7	5,18	11,7	0,762	71346
Singapore, 5	5	30,8	8,47	26,7	0,771	-
Los Angeles, 6	6	14,6	15,32	17,6	0,883	61920
Boston, 7	7	19	15,32	10,1	0,883	93663
Seoul, 8	8	13	11,77	11,3	0,799	-
San Francisco, 9	9	16,62	15,32	19,6	0,883	130744
Houston, 10	10	14,6	15,32	20,9	0,883	62443
Berlin, 11	11	10,4	9,42	10,1	0,917	46299
Chicago, 12	12	21,1	15,32	10,2	0,883	67733
Stockholm, 13	13	8,1	4,49	7,3	0,885	68720
Dubai, 14	14	22,3	24,33	28,2	0,751	-
Toronto, 15	15	9,7	18,72	8,7	0,893	44095
Munich, 16	16	7,2	9,42	8,8	0,917	79635
Vienna, 17	17	11,1	8,44	9,9	0,832	51275
Sydney, 18	18	11,7	17,15	18	0,896	46320
Madrid, 19	19	8,8	5,42	14,5	0,717	45013
Amsterdam, 20	20	10,5	9,54	10,7	0,875	67167
Seattle, 21	21	17,3	15,32	10,8	0,883	98051
Dallas, 22	22	16,5	15,32	19,3	0,883	63338
Melbourne, 23	23	13,9	17,15	14,8	0,896	41736
Montreal, 24	24	10,1	18,72	7,1	0,893	38491
Atlanta, 25	25	18,7	15,32	16,7	0,883	66439
Barcelona, 26	26	7,1	5,42	15,5	0,717	39459
Milan, 27	27	8	5,96	13	0,727	56822
Beijing, 28	28	4,2	7,44	12,7	0,573	30178
Vancouver, 29	29	10,2	18,72	9,5	0,893	45071
Copenhagen, 30	30	10,1	6,66	8,9	0,909	62132
Miami, 31	31	16	15,32	24,6	0,883	54262
Washington DC, 32	32	19	15,32	13,7	0,883	77580
Philadelphia, 33	33	19,5	15,32	18,1	0,883	67668
Oslo, 34	34	10,2	8,3	5,9	0,912	130943
Osaka, 35	35	3,8	9,76	15,8	0,829	41250
Dublin, 36	36	9,1	8,29	9,4	0,856	102486
San Diego, 37	37	14,5	15,32	16,7	0,883	66417
Brisbane, 38	38	19,1	17,15	20	0,896	41153
Helsinki, 39	39	7,4	9,31	6,1	0,907	56831
Tel Aviv, 40	40	11,5	7,99	20,5	0,835	-
Hamburg, 41	41	11,1	9,42	9,8	0,917	57359
Denver, 42	42	19,4	15,32	9	0,883	68836
Portland, 43	43	16,7	15,32	11,3	0,883	63124
Austin, 44	44	15	15,32	20,4	0,883	67884
Las Vegas, 45	45	12,3	15,32	20,3	0,883	47385
Shanghai, 46	46	7,6	7,44	16,6	0,573	23373
Detroit, 47	47	25,5	15,32	10	0,883	54376
Rome, 48	48	6,7	5,96	15,8	0,727	45343
Brussels, 49	49	7,5	8,37	10,7	0,859	57258
Newark, 50	50	15,02	15,32	11,8	0,883	-
Baltimore, 51	51	20,2	15,32	13	0,883	-
Taipei, 52	52	6,2	11,73	21,1	-	-
Istanbul, 53	53	5,2	4,54	14,9	0,68	46104
Zürich, 54	54	11	4,74	9,7	0,902	76319
Phoenix, 55	55	15,9	15,32	23,2	0,883	51395
Oakland, 56	56	19,3	15,32	14,1	0,883	-
Orlando, 57	57	14,7	15,32	22,1	0,883	-
Hong Kong, 58	58	34,6	6,33	22,6	0,802	-
Prague, 59	59	9,9	10,62	9,8	0,868	60032
Lisbon, 60	60	5,3	4,85	16,7	0,685	38343
Mexico City, 61	61	2,3	3,63	16	0,623	23213
Buenos Aires, 62	62	4,1	4,6	24,2	0,818	-
Perth, 63	63	18,09	17,15	18,6	0,896	77950
Kyoto, 64	64	2,87	9,76	14,1	0,829	-
Basel, 65	65	7,35	4,74	10,5	0,902	91046
Athens, 66	66	10,8	6,31	17,5	0,777	35192
Sacramento, 67	67	14,2	15,32	16,8	0,883	56428
Frankfurt, 68	68	10	9,42	10,7	0,917	65198
Tampa, 69	69	15,3	15,32	22,5	0,883	59727
Minneapolis, 70	70	21,8	15,32	7,9	0,883	68478
Pittsburgh, 71	71	24	15,32	10,9	0,883	73601
San Antonio, 72	72	15,2	15,32	21	0,883	47070
Riverside, 73	73	9,69	15,32	17,9	0,883	-
Shenzhen, 74	74	37,1	7,44	22,4	0,573	22994
Abu Dhabi, 75	75	32,9	24,33	27,9	0,751	-
Moscow, 76	76	6,9	11,45	5,7	0,846	-
Auckland, 77	77	6,8	7,13	15,5	0,914	43839
Budapest, 78	78	5,8	5,2	11,1	0,802	46774
Oporto, 79	79	6,8	4,85	15,1	0,685	28897
Sao Paulo, 80	80	1,7	2,24	14,7	0,594	-
Nagoya, 81	81	3,7	9,76	14,7	0,829	49054
Düsseldorf, 82	82	10,32	9,42	10,9	0,917	68028
Yokohama, 83	83	4	9,76	15,3	0,829	-
Quebec, 84	84	8,9	18,72	5,4	0,893	39568
Stuttgart, 85	85	8,8	9,42	10	0,917	64556
Manchester, 86	86	9,5	5,6	9,4	0,901	36565
Rotterdam, 87	87	11,1	9,54	10,8	0,875	52518
Lyon, 88	88	5,6	5,18	12	0,762	54225
Warsaw, 89	89	7,5	7,7	9,3	0,845	66746
Charlotte, 90	90	14,5	15,32	16,1	0,883	70095
Nashville, 91	91	17,6	15,32	15,5	0,883	46861
Cleveland, 92	92	24,7	15,32	10,5	0,883	-
Gothenburg, 93	93	8,31	4,49	8,1	0,885	46808
Santa Ana, 94	94	12,11	15,32	16,9	0,883	-
Cincinnati, 95	95	22,6	15,32	12,7	0,883	64430
Kansas City, 96	96	22,6	15,32	13,3	0,883	-
Cologne, 97	97	10	9,42	10,7	0,917	54138
Geneva, 98	98	7,99	4,74	10	0,902	77386
Fort Lauderdale, 99	99	8,99	15,32	24,3	0,883	-
Guangzhou, 100	100	6,1	7,44	22,4	0,573	22504

Figure I.2: All values used for the ICI.