

The Swiss Life Asset Managers' European Thematic Cities Index



Identifying the cities most aligned to thematic structural change



Visit the Swiss Life Asset Managers TCI website to explore all cities: citiesindex.swisslife-am.com

Themes that drive real estate performance

The way we live, work and play has evolved significantly over the last decade and with it the way we use real estate. Underlying megatrends such as demographic shifts, globalisation, climate change and digitalisation will continue to drive this change at an accelerating rate. Institutional investors must identify real estate that is positively aligned to change in order to ensure portfolio resilience.

To achieve this, Swiss Life Asset Managers applies a thematic investment approach that identifies overarching themes, the 5 C's, that will drive real estate performance in an ever-changing world. The 5 C's are: Change & Disruption, Climate & Environment, Communities & Clustering, Consumers & Lifestyle, and Connectivity. Swiss Life Asset Managers has built on years of expertise applying the 5 C's across countries, cities and assets. We use the 5 C's to screen new investments, to review existing holdings, to determine asset management opportunities that enhance value and to optimally time exits. We believe that places and assets which perform strongly across the 5 Cs will capitalise on structural change. They will be more attractive to occupiers and knowledge-based workers. This cross-sectional appeal to businesses and the skilled workers they need to succeed in the modern economy will underpin occupier demand and support sustained, long term real estate performance.

The 5 C's and the city

The Swiss Life Asset Managers' European Thematic Cities Index (TCI) compares European cities across the 5 C's. It identifies those most likely to be resilient in the face of unrelenting structural change as well as

their individual strengths and weaknesses. We translate the 5 C's into city specific themes that resilient cities will need.

A resilient city must exhibit strong **dynamism** to address Change & Disruption by offering unparalleled opportunities to create, innovate, educate and produce. The Climate & Environment theme outlines that ecologically **healthy** cities will be best equipped to deal with climate change, environmental impact and the growing need to enhance the physical and mental wellbeing of their residents. By providing strong **networks** a city allows Communities & Clusters to form and thrive. Consumer & Lifestyle demands are best met in **cosmopolitan** cities that offer stimulating, varied and diverse options to a multicultural and educated population. **Accessible** cities offer high quality infrastructure to guarantee physical and virtual Connectivity. The TCI ranks 137 European cities from 28 countries in respect of the five core city themes Dynamism, Healthiness, Networks, Cosmopolitanism and Accessibility. Launched in 2021, the TCI will be updated annually. The model behind it includes 49 attributes and is based on the Organisation for Economic Cooperation and Development (OECD) handbook on constructing composite indicators.

5 Themes	49 Attributes	137 Cities
detailed thematic insight	multiple data sources ¹	significant European coverage

¹ The model is based on data from 2thinknow, Oxford Economics, Eurostat and European Environment Agency



The TCI and our investment approach

The ranking differs from other city rankings as it focuses on the structurally-driven themes that shape real estate demand. It avoids a large city bias by predominately using per capita attributes and it takes trend forecasts into account, benefiting cities with the most potential for further strengthening.

The TCI adds to our pan-European real estate research expertise. It is an additional tool that informs our bi-annual publications of the Real Estate House View and the Strategic Implications and strengthens our investment approach in several ways. The purely data driven score offers a comparable metric to illuminate the relative strengths and weaknesses of cities across the themes derived from the 5 C's. As such, the ranking can serve as a starting point for investment analyses, combined with other qualitative and quantitative information. The detailed insights gained from our proprietary TCI support the development of well-informed investment strategies. It aids Swiss Life Asset Managers in building resilient real estate portfolios that appeal to the occupiers of today and tomorrow. It enhances the ability to position investments to protect, create and grow income in a rapidly evolving world.

The TCI is customisable and can be recalibrated based on the individual needs and strategies of investors. Tailored results can exclude cities of different sizes or in different countries and reweight the city themes, giving higher emphasis to themes at the centre of an investment product or idea. The TCI allows Swiss Life Asset Managers to combine our expertise with detailed thematic data to analyse individual cities and understand the drivers of their performance.

The TCI offers a competitive edge to investors to

- Allocate capital to thematically stronger cities that we expect to perform strongly.
- Selectively target cities based on unique investment strategies. For example, a fund focusing on environmental sustainability can identify cities with ecological credentials by assigning a higher weight to City Healthiness.
- Review existing portfolios based on their exposure to thematically strong cities.
- Add value by gaining a deeper understanding of the strengths and weaknesses of cities and enabling city deficiencies to be addressed within their assets.

The 5Cs and the cities

5Cs	Implication on city level	City theme	Attributes
Change & Disruption	Ability and means to adapt to and embrace changes by offering opportunities to create, innovate, educate and produce	 Dynamism	Economic output Ease of business Entrepreneurialism
Climate & Environment	Ability to build resilience to a shifting climate and to support a healthy and sustainable future for the physical and mental well-being of citizens	 Healthiness	Air quality Sustainability Waste management
Communities & Clustering	Ability to provide places where personal and professional networks can build and thrive and where occupiers can access business and talents	 Networks	Business density Educational offer Growth potential
Consumer & Lifestyle	Ability to meet changing consumer demands and support different lifestyles by offering stimulating, varied and diverse options to multicultural residents	 Cosmopolitanism	Amenity provision Entertainment Population diversity
Connectivity	Ability to connect citizens seamlessly to the physical and digital world within and outside of the city	 Accessibility	Personal mobility Digital access Public transport



The European TCI Ranking 2021

The thematically strongest cities in the overall European ranking 2021 are the capitals London, Amsterdam and Paris. Furthermore, three Nordic capitals as well as the three non-capital cities Basel, Zurich and Manchester rank within the top ten. The TCI also reveals thematic strength of some smaller cities such as Lausanne, Potsdam, Milton Keynes or Grenoble, which profit from our per-capita adjustment of some variables. At the bottom of the ranking are cities like Gijon, Brno and Granada. These cities are not necessarily unattractive for real estate investments but special attention to their scores can help identify lucrative segments. Our 2021 scores are not immune to the pandemic, as lockdowns affected some attributes such as mobility data, business registrations and air quality.

Rankings of the top 35 European cities

	Overall Ranking					
London	1	1	7	1	1	77
Amsterdam	2	6	2	3	31	9
Paris	3	2	37	7	9	32
Oslo	4	27	6	35	6	19
Luxembourg	5	26	22	12	62	1
Stockholm	6	37	4	16	30	12
Copenhagen	7	23	5	23	63	6
Basel	8	38	63	11	3	11
Zurich	9	49	10	6	14	20
Manchester	10	15	12	32	28	8
Munich	11	29	23	2	26	22
Berlin	12	90	3	14	2	57
Dublin	13	5	40	18	16	44
Dusseldorf	14	110	15	20	34	2
Edinburgh	15	10	36	13	7	80
Brussels	16	72	11	5	111	7
Lausanne	17	12	70	4	22	47
Bristol	18	16	59	10	8	70
Bern	19	63	77	65	5	5
Helsinki	20	55	14	45	76	4
Tallinn	21	11	66	54	12	34
Potsdam	22	83	1	70	20	14
Cambridge	23	4	79	19	11	93
Vienna	24	95	8	49	39	13
Milton Keynes	25	3	30	67	23	71
Belfast	26	9	82	34	24	46
Reading	27	7	38	24	29	96
Gothenburg	28	69	69	79	50	3
Newcastle	29	32	25	57	38	65
Cardiff	30	47	29	37	64	36
Frankfurt	31	101	88	17	54	10
Karlsruhe	32	92	34	50	21	25
Grenoble	33	53	67	22	72	35
Rotterdam	34	50	32	64	85	27
Hamburg	35	114	17	30	4	106

Scores of selected top-ranking European cities (maximum possible score per category = 20)

■ Mean Overall ▨ Mean Country □ City Score

Amsterdam



Amsterdam ranks 2nd overall and is among the top 10 cities in each theme except for City Cosmopolitanism, where it ranks 31st. Even in this theme it scores above average compared to all cities and to other Dutch cities.

Oslo*



Nordic cities are thematically strong in general, and Oslo ranks the highest among them. It scores very well on City Healthiness and City Cosmopolitanism, with a sustainable infrastructure and diverse amenity.

Luxembourg*



Luxembourg ranks 5th with particular thematic strength in both physical and digital accessibility. Its only average score for City Cosmopolitanism is due to its relatively low cultural sector share.

* No country comparison as only one city from the country included



The German Ranking 2021

The TCI covers 30 German cities, with 13 cities ranking within the top half of the overall ranking. German cities are some of the healthiest in Europe according to our data, with 21 German cities in the top half of the European City Healthiness ranking. Potsdam is the healthiest city in the European TCI, followed by Berlin. Nine German cities rank in the lowest quartile. German cities generally score below average in City Dynamism. The TCI model finds that German cities are less business friendly than for example their UK peers across several indicators.

The lowest ranking German city, Mannheim, ranks 124th overall, with high potential for improvement in City Dynamism, digital City Accessibility and City Healthiness, the latter being impacted by below average air quality and a high concentration of less environmentally friendly sectors.

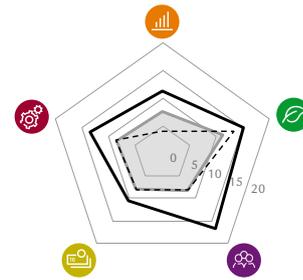
Ranking of German cities

	Overall Ranking					
Munich	11	29	23	2	26	22
Berlin	12	90	3	14	2	57
Dusseldorf	14	110	15	20	34	2
Potsdam	22	83	1	70	20	14
Frankfurt	31	101	88	17	54	10
Karlsruhe	32	92	34	50	21	25
Hamburg	35	114	17	30	4	106
Bonn	36	109	18	71	15	41
Nuremberg	43	121	49	40	32	21
Stuttgart	53	112	97	43	40	15
Dresden	59	134	26	66	48	24
Freiburg im Breisgau	62	129	9	72	78	38
Darmstadt	65	61	89	47	96	42
Cologne	73	111	31	52	75	97
Bremen	77	118	42	110	91	40
Mainz	82	119	47	88	94	61
Heidelberg	85	98	73	93	65	88
Augsburg	93	132	51	75	71	94
Hanover	96	135	41	112	82	50
Wiesbaden	99	116	76	28	121	98
Dortmund	101	127	74	113	53	95
Regensburg	103	58	93	83	124	100
Leipzig	104	133	45	84	116	84
Erfurt	105	120	28	115	83	118
Essen	106	131	39	102	98	99
Osnabrück	110	93	65	97	107	124
Muenster	116	128	13	91	115	135
Aachen	118	115	80	96	105	120
Bielefeld	120	124	46	118	110	119
Mannheim	124	130	125	82	68	108

Scores of selected top-ranking European cities (maximum possible score per category = 20)

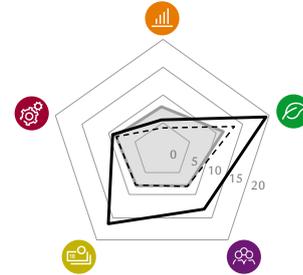
■ Mean Overall ▨ Mean Country □ City Score

Munich



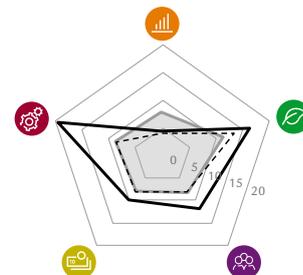
Munich ranks 2nd overall in City Networks with an above average performance in all attributes within this theme. Munich is a commuter and bicycle friendly city and attractive to many start-ups.

Berlin



Berlin shows thematic strength in City Healthiness and City Cosmopolitanism supported by very sustainable infrastructure. Its below average score in City Dynamism is due to the high hurdles faced by new business.

Dusseldorf



Dusseldorf is the 2nd highest scoring European city for City Accessibility driven by high intercity connectivity and an international airport. It exhibits low City Dynamism as seen within forward looking indicators.



The French Ranking 2021

Six out of the 20 French cities rank within the top half of the European TCI. Paris is the only French city to score within the top 20 European cities. Note that many of our attributes only cover wider French regions, including some rural areas, instead of inner cities. Therefore, we expect French scores to be biased to the downside against their European peers on average. French cities score well in City Healthiness with 13 cities ranking in the top half of this theme. Bordeaux is the highest-ranking French city within City Healthiness, followed by Lille and Limoges. Marseille is the laggard. According to our data, it scores below average in air quality and sustainable infrastructure provision. In the other four themes, French cities score just below the European average. Nine French cities rank in the top half of all European cities for City Accessibility, seven do so in City Dynamism, six within City Networks and five within City Cosmopolitanism. Lyon, the second largest French city, ranks in the top half across four themes. With viable business clusters, strong inner and inter-city connectivity and high City Healthiness, it is well positioned to continue attracting talented workers who will support spending and growth. Its overall score is very close to that of Bordeaux and Toulouse, the 3rd and 4th cities in the French ranking.

Ranking of French cities

	Overall Ranking					
Paris	3	2	37	7	9	32
Grenoble	33	53	67	22	72	35
Bordeaux	46	107	16	59	79	33
Toulouse	54	70	55	56	36	63
Lyon	55	60	48	53	87	43
Cannes	66	48	86	58	97	59
Nantes	72	75	52	80	70	90
Rennes	74	85	62	99	84	60
Nice	81	68	105	90	67	56
Montpellier	83	88	54	69	120	75
Metz	84	66	57	108	101	86
Lille	88	76	27	119	126	72
Strasbourg	94	126	91	106	60	55
Le Havre	97	57	83	124	59	104
Marseille	102	71	113	98	80	81
Dijon	111	108	61	125	93	107
Limoges	119	113	33	129	104	123
Saint-Étienne	121	103	44	127	122	126
Reims	129	117	94	135	89	114
Rouen	130	99	106	131	114	117

Scores of selected top-ranking European cities (maximum possible score per category = 20)

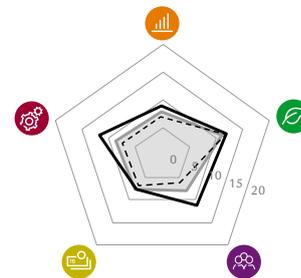
■ Mean Overall ▨ Mean Country □ City Score

Paris



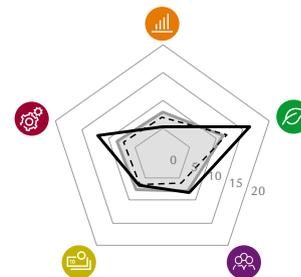
Data quality for Paris is higher than for other French cities. Paris scores well above average across all themes and 2nd overall in City Dynamism with solid economic fundamentals and education amenities.

Grenoble



Grenoble is the third smallest French city in the TCI. The high performance within the City Networks ranking comes from its strong clusters and meeting places that are well positioned in the densely populated city.

Bordeaux



Bordeaux ranks 16th in Healthiness with a sustainable infrastructure and efficient waste management system contributing to relatively high air quality. Its low score for business friendliness impacts its City Dynamism.



The United Kingdom Ranking 2021

The TCI includes 24 UK cities. These perform well within the European rankings reflecting their strong underlying economic and livability characteristics. London, Manchester and Edinburgh are the highest thematically ranked UK cities in 2021. They are followed by Bristol and Cambridge. These five UK cities rank among the top 25 European cities. 20 UK cities rank in the top half of the overall European ranking. The lowest ranking UK city is Hull which ranks 108th overall, with high potential for improvement, especially across City Networks and City Healthiness. Whilst the South East is often perceived as being economically dominant within the UK, the TCI reveals that regional cities hold their own when it comes to thematic strength. This does not just relate to pure economic or population size but rather to how well they respond to the needs of the workforce, residents and businesses. This will be key in attracting and retaining knowledge-based businesses and talent in a rapidly changing world. Whether Brexit has an impact on the long-term structural attributes of UK cities will only become clear over time.

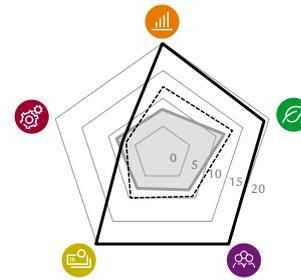
Ranking of UK cities

	Overall Ranking					
London	1	1	7	1	1	77
Manchester	10	15	12	32	28	8
Edinburgh	15	10	36	13	7	80
Bristol	18	16	59	10	8	70
Cambridge	23	4	79	19	11	93
Milton Keynes	25	3	30	67	23	71
Belfast	26	9	82	34	24	46
Reading	27	7	38	24	29	96
Newcastle	29	32	25	57	38	65
Cardiff	30	47	29	37	64	36
Birmingham	38	22	53	61	35	85
Nottingham	39	39	21	109	45	58
Southampton	40	19	35	51	43	101
Brighton	41	13	50	33	57	105
Liverpool	42	45	19	95	42	73
Leicester	49	41	95	86	13	48
Glasgow	56	21	20	78	73	110
Leeds	58	33	60	25	81	103
Oxford	60	8	107	21	52	111
York	64	25	43	46	51	129
Sheffield	79	51	56	73	46	127
Bath	87	30	109	41	61	128
Coventry	90	52	92	87	112	92
Hull	109	67	108	126	49	102

Scores of selected top-ranking European cities (maximum possible score per category = 20)

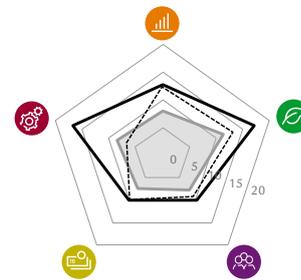
■ Mean Overall ▨ Mean Country □ City Score

London



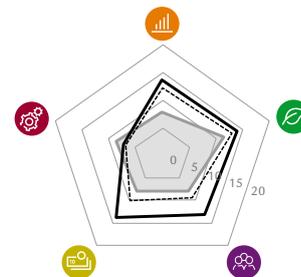
London ranks among the top 10 in all themes, except Accessibility due to relatively lower digital connectivity and walkability. It combines an unparalleled concentration of companies, talent and opportunity.

Manchester



Manchester is the UK's second healthiest city largely due to a sustainable infrastructure. It provides an extensive transport network with a busy international airport and is enticing to highly talented professionals.

Edinburgh



With above average scores across four themes, Edinburgh ranks 10th in the European rankings and 3rd in the UK. This is due to business friendliness, sectoral clusters, diverse cultural amenity and clean air.



The Swiss Ranking 2021

All six Swiss cities within the TCI rank among the top 50 European cities. On average Swiss cities score above the European mean in all themes, exhibiting most thematic strength in City Networks, City Cosmopolitanism and City Accessibility.

Among Swiss cities, Basel is the most cosmopolitan, Zurich the healthiest, Lausanne the best networked and most dynamic and Bern the most accessible city. Swiss citizens profit from solid thematic fundamentals driving a high standard of living, diverse and internationally renowned educational opportunities and a large inner and inter-city transportation network. Swiss cities succeeded in forming vital sectoral clusters that can attract national and international talent.

The already established economic strength of Switzerland means its future potential growth rate is forecasted to be lower than other countries, explaining the only slightly above average City Dynamism scores. In City Healthiness, only Basel and Zurich reach the upper half of the ranking. The score for Lucerne is driven down by its sectoral composition, higher car dependency and lower bicycle friendliness, according to our data.

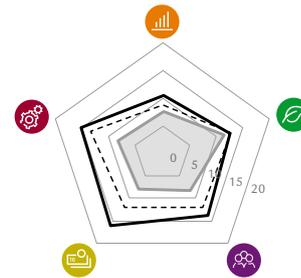
Ranking of Swiss cities

	Overall Ranking					
Basel	8	38	63	11	3	11
Zurich	9	49	10	6	14	20
Lausanne	17	12	70	4	22	47
Bern	19	63	77	65	5	5
Lucerne	44	74	87	76	33	16
Geneva	47	79	72	15	56	54

Scores of selected top-ranking European cities (maximum possible score per category = 20)

■ Mean Overall ▨ Mean Country □ City Score

Basel



Basel ranks 3rd in City Cosmopolitanism overall with a high standard of public amenities that support a diverse population. Its City Healthiness is decreased by its relatively high share of pollution-intensive sectors.

Zurich



Zurich ranks among the top 50 in all themes and exhibits particularly strong City Networks with its strong sector clusters and high start-up rate. Lower growth potential drives down its City Dynamism score.

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