

The Smart Centres Index 8



November 2023









We are pleased to present the eighth edition of the **Smart Centres Index** (SCI 8).

The SCI has been developed by Z/Yen as part of its Long Finance Initiative and the Distributed Futures Programme to track commercial centres' ability to create, develop, and deploy technology. It aims to help investors, governments, and regulators track the attractiveness of technology centres for new technologies and products by measuring how attuned centres and their regulatory systems are to attracting innovation and growth in Science, Technology, Energy Systems, Machine Learning, Distributed Ledgers, and Fintech.

The SCI tracks three dimensions related to innovation and technology in the cities that we rank:

- Innovation Support the support provided by regulatory and other systems to innovation and technology in a centre.
- Creative Intensity the intensity of technology and innovation services and opportunities in a centre.
- Delivery Capability the quality of the technology and innovation work that is taking place in a centre.

Z/Yen helps organisations make better choices - our clients consider us a commercial think-tank that spots, solves, and acts. Our name combines Zen and Yen - 'a philosophical desire to succeed' - in a ratio, recognising that all decisions are trade-offs. One of Z/Yen's specialisms is the development and publication of research combining factor analysis and professional assessments.

Long Finance is a Z/Yen initiative designed to address the question "When would we know our financial system is working?" This question underlies Long Finance's goal to improve society's understanding and use of finance over the long-term. In contrast to the short-termism that defines today's economic views, the Long Finance timeframe is roughly 100 years.

The authors of this report, Mike Wardle and Professor Michael Mainelli, would like to thank Bikash Kharel and the rest of the Z/Yen team for their contributions with research, modelling, and ideas.

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Smart Centres Index 8

Contents	Page
Summary And Headlines	1
SCI 8 Ranks And Ratings	3
The Three SCI Dimensions	5
Top Five Centres	7
SCI 8: Further Analysis	9
Areas Of Competitiveness	10
Commentary On Factors	13
Reputation	14
The SCI 8 World - Centres In The Index	15
Regional Analysis	17
North America	18
Asia/Pacific	20
Western Europe	22
Middle East & Africa	24
Eastern Europe & Central Asia	25
Latin America & The Caribbean	27
Appendix 1: Assessment Details	28
Appendix 2: Respondents' Details	31
Appendix 3: Methodology	32
Appendix 4: Instrumental Factors	35

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Summary And Headlines

Commentary

The Smart Centres Index focuses on technology and innovation in financial and commercial centres across the world, including Science, Energy Systems, and Machine Learning, along with other applications. The index is designed to improve our understanding of science and technology policy, regulation, and delivery. Leading centres in the SCI are based in places which combine a high performing university sector across STEM subjects, with well-developed regulatory, commercial, and financial services.

The SCI takes into account the three dimensions of Innovation Support, Creative Intensity, and Delivery Capability. In broad terms, centres in North America score higher for Delivery Capability. Centres in Western Europe score higher for Innovation Support and Creative Intensity. Centres in Asia/Pacific score lower for Delivery Capability and higher for Creative Intensity.

As a mark of continued technological progress, we asked respondents to the SCI survey to predict the time frame over which they expected quantum computers to be able to break current public key encryption. Over three-quarters of respondents expect this point to be reached within five years. Alongside the development of generative AI, these developments will continue to have an impact on work and leisure.

Following a rise in the average ratings in SCI 7, the average rating in SCI 8 rose by just 0.47%. Against a background of geopolitical threats, this may reflect uncertainty over the perceived risks and uncertain types of benefits arising from technologies such as generative AI. Most centres in the top half of the table fell in the ratings, while the reverse is true for centres in the lower half of the index. Regional performance followed this trend, with Western European and North American centres' average rating falling, reflecting the higher number of centres in these regions in the top half of the ranking.

SCI 8 Results

- London retained first place in the index, with New York and Singapore in second and third positions.
- Four Western European centres feature in the top 10, and three US centres.
- Singapore and Hong Kong feature in the top 10 among Asia/Pacific centres and Tel Aviv continues to feature in the top 10.
- Four centres rose 10 or more places in the ranking in SCI 8, while five centres fell 10 or more places.

North America

- Nine North American centres feature in SCI 8 and three are in the world top 10.
- Five centres in the region maintained or improved their rank position compared with SCI 7, with Toronto improving 8 rank places.
- All North American centres fell in the SCI ratings.

Asia/Pacific

- 21 Asia/Pacific centres feature in the SCI.
- Singapore, Hong Kong, and Busan continue to rank in the top 20 in the world.
- Fourteen centres in the region maintained their position or rose in the ranking in SCI 8.

Western Europe

- 25 Western European centres feature in SCI 8, with four centres ranking in the top 10 and eight in the top 20.
- Paris rose 17 places in the ranking and Madrid rose 10 places compared with SCI 7.

Middle East & Africa

- Tel Aviv leads this region and moved into 7th position overall, with Dubai entering the top 20 at 16th position in the world.
- Mauritius entered the index for the first time in 63rd position.
- Following improvements in SCI 7, all centres in the region, other than Tel Aviv and Dubai, fell back in the ranking.

Eastern Europe & Central Asia

- New entrant to the index, Cyprus, leads the region in 42nd place globally.
- · Astana moved up nine rank places to take second place in the region
- Tallinn and Prague fell slightly, while Sofia, which led the region in SCI 7 fell 10 rank places and is sixth in the region.

Latin America & The Caribbean

- Mexico City leads the region, and has extended its lead over the Cayman Islands to 12 rank places.
- Mexico City regained ground in SCI 8, while the Cayman Islands ranking was down two places.
- British Virgin islands entered the SCI for the first time.

SCI8

The SCI is a factor assessment index, combining a number of instrumental factors - data measures drawn from a range of data providers across the world - and assessments given by business and finance professionals of three dimensions related to innovation and technology:

- Innovation Support the support provided by regulatory and other systems to innovation and technology in a centre.
- Creative Intensity the intensity of technology and innovation services and opportunities in a centre.
- Delivery Capability the quality of the technology and innovation work that is taking place in a centre.

These dimensions are brought together in the overall SCI ratings to produce the index, which is updated every six months.

SCI 8 was compiled using 135 instrumental factors. These quantitative measures are provided by third parties including the World Bank, The Economist Intelligence Unit, the OECD, and the United Nations. Details can be found in Appendix 4.

The instrumental factors were combined with 1,705 assessments provided by respondents to the <u>SCI online questionnaire</u>. Details of the 232 respondents are shown in Appendix 2. Further details of the methodology behind SCI 8 are in Appendix 3.

We researched 131 commercial and financial centres for this eighth edition of the Smart Centres Index (SCI 8). The 77 centres listed in SCI 8 are those which received an adequate number of assessments from survey respondents. Assessments of respondents' home centres were excluded from the data, in order to avoid home centre bias.

SCI 8 Ranks And Ratings

Table 1 | Smart Centres index 8: Ranks And Ratings

Centre Rank Rating Rank Pazo Pa		S	CI 8	SC	17	Change In	Change In
New York 2 727 2 750 0 ▼23 Singapore 3 717 6 721 ▲3 ▼4 Zurich 4 715 4 725 0 ▼10 Oxford, UK 5 713 7 719 ▲2 ▼6 San Francisco 6 711 3 732 ▼3 ▼21 Tel Aviv 7 707 9 717 ▲2 ▼10 Los Angeles 8 705 8 718 0 ▼13 Cambridge, UK 9 703 13 713 ▲4 ▼10 Hong Kong 10 702 10 716 0 ▼14 Stockholm 11 701 15 711 A4 ▼10 Vancouver 13 699 18 708 A5 ▼9 Boston 14 698 12 714 ▼2 716 Busan	Centre	Rank	Rating	Rank	Rating	Rank	Rating
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Malta 25 687 17 709 ▼8 ▼22 Brussels 26 686 30 688 ▲4 ▼2 Shanghai 27 685 27 692 0 ▼7 Luxembourg 28 684 33 685 ▲5 ▼1 Seoul 29 683 28 691 ▼1 ▼8 Tokyo 30 682 22 704 ▼8 ▼22 Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Washington DC	23	689	26	694	▲ 3	▼5
Brussels 26 686 30 688 ▲4 ▼2 Shanghai 27 685 27 692 0 ▼7 Luxembourg 28 684 33 685 ▲5 ▼1 Seoul 29 683 28 691 ▼1 ▼8 Tokyo 30 682 22 704 ▼8 ▼22 Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Berlin	24	688	32	686	▲8	A 2
Shanghai 27 685 27 692 0 ▼7 Luxembourg 28 684 33 685 ▲5 ▼1 Seoul 29 683 28 691 ▼1 ▼8 Tokyo 30 682 22 704 ▼8 ▼22 Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Malta	25	687	17	709	▼8	▼22
Luxembourg 28 684 33 685 ▲ 5 ▼ 1 Seoul 29 683 28 691 ▼ 1 ▼ 8 Tokyo 30 682 22 704 ▼ 8 ▼ 22 Melbourne 31 681 39 672 ▲ 8 ▲ 9 Sydney 32 680 35 682 ▲ 3 ▼ 2 Dublin 33 679 41 669 ▲ 8 ▲ 10 GIFT City-Gujarat 34 678 42 668 ▲ 8 ▲ 10 Abu Dhabi 35 677 31 687 ▼ 4 ▼ 10 Beijing 36 676 34 683 ▼ 2 ▼ 7 Taipei 37 675 40 671 ▲ 3 ▲ 4	Brussels	26	686	30	688	A 4	▼2
Seoul 29 683 28 691 ▼1 ▼8 Tokyo 30 682 22 704 ▼8 ▼22 Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Shanghai	27	685	27	692	0	▼7
Tokyo 30 682 22 704 ▼8 ▼22 Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Luxembourg	28	684	33	685	\$ 5	▼1
Melbourne 31 681 39 672 ▲8 ▲9 Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Seoul	29	683	28	691	▼1	▼8
Sydney 32 680 35 682 ▲3 ▼2 Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Tokyo	30	682	22	704	▼ 8	▼22
Dublin 33 679 41 669 ▲8 ▲10 GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Melbourne	31	681	39	672	▲8	▲ 9
GIFT City-Gujarat 34 678 42 668 ▲8 ▲10 Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4		32	680	35	682	▲ 3	▼2
Abu Dhabi 35 677 31 687 ▼4 ▼10 Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	Dublin	33	679	41	669	▲ 8	▲ 10
Beijing 36 676 34 683 ▼2 ▼7 Taipei 37 675 40 671 ▲3 ▲4	GIFT City-Gujarat	34	678	42	668	▲8	▲ 10
Taipei 37 675 40 671 ▲3 ▲4	Abu Dhabi	35	677	31	687	▼ 4	▼ 10
	Beijing	36	676	34	683	▼2	▼7
Paris 38 674 55 647 ▲ 17 ▲ 27	Taipei	37	675	40	671	▲ 3	A 4
1 ali 3 30 0/4 33 04/ A 1/ A 2/	Paris	38	674	55	647	▲ 17	▲ 27

Table 1 (continued) | Smart Centres index 8: Ranks And Ratings

Centre	S	SCI 8		SCI 7		Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Doha	39	673	29	690	▼10	▼17
Gibraltar	40	672	45	664	▲ 5	▲8
Guangzhou	41	671	37	679	▼4	▼8
Cyprus	42	670	New	New	New	New
Chengdu	43	669	46	661	▲ 3	▲ 8
Astana	44 45	668 667	53 52	652 653	▲ 9 ▲ 7	▲ 16 ▲ 14
Hamburg Bangkok	45	666	36	680	▼10	▼ 14
Vienna	47	665	38	673	▼9	▼8
Tallinn	48	664	44	666	▼ 4	▼2
Prague	49	663	48	657	▼1	A 6
Budapest	50	662	63	630	▲ 13	▲ 32
Osaka	51	661	47	660	▼4	1
Tianjin	52	660	61	635	▲ 9	▲ 25
Sofia	53	659	43	667	▼ 10	▼8
Edinburgh	54	658	49	656	▼ 5	A 2
Cape Town	55	657	50	655	▼5	A 2
Madrid	56	656	66	623	▲ 10	▲33
Guernsey	57	655	51	654	▼ 6	1
Athens	58	654	70	612	▲ 12	▲ 42
Frankfurt	59	653	54	650	▼ 5	▲ 3
Munich	60	652	56	646	▼4	A 6
Johannesburg	61	651	58	640	▼ 3	▲ 11
Mexico City	62	650	68	617	▲ 6	▲33
Mauritius	63	649	New	New	New	New
Riyadh	64	648	57	645	▼ 7	▲ 3
Warsaw	65	647	69	614	4	▲33
Milan	66	646	62	632	▼ 4	▲ 14
Rome	67	645	74	582	▲ 7	▲ 63
Istanbul	68	644	59	639	▼ 9	▲ 5
Mumbai	69	643	76	571	A 7	▲ 72
Kuala Lumpur	70	642	71	610	1	▲32
Isle of Man	71	641	73	590	▲2	▲51
Moscow	72	640	67	618	▼ 5	▲22
Bahrain	73	639	60	636	▼13	▲ 3
Cayman Islands	74	638	72	609	▼2	▲ 29
Manila	75	637	64	627	▼ 11	▲ 10
New Delhi	76	636	77	539	1	▲ 97
British Virgin Islands	77	615	New	New	New	New

The Three SCI Dimensions

We develop the SCI ratings and ranking by looking at three separate dimensions of technology and innovation development:

- Innovation Support the approach taken to regulation and support for the innovation and technology industry provided by the commercial ecosystem.
- Creative Intensity the extent to which technology and innovative industries are embedded in the economy of the centre.
- Delivery Capability the quality of the innovation work being undertaken in the centre.

We develop ratings for each dimension, which are ranked equally in creating the SCI. Full details of the separate ratings for each dimension are at Appendix 1. Table 2 shows the rating details for each dimension for the top 20 centres in SCI 8.

Table 2 | Rating Details For SCI 8 Dimensions: Top 20 Centres in SCI 8

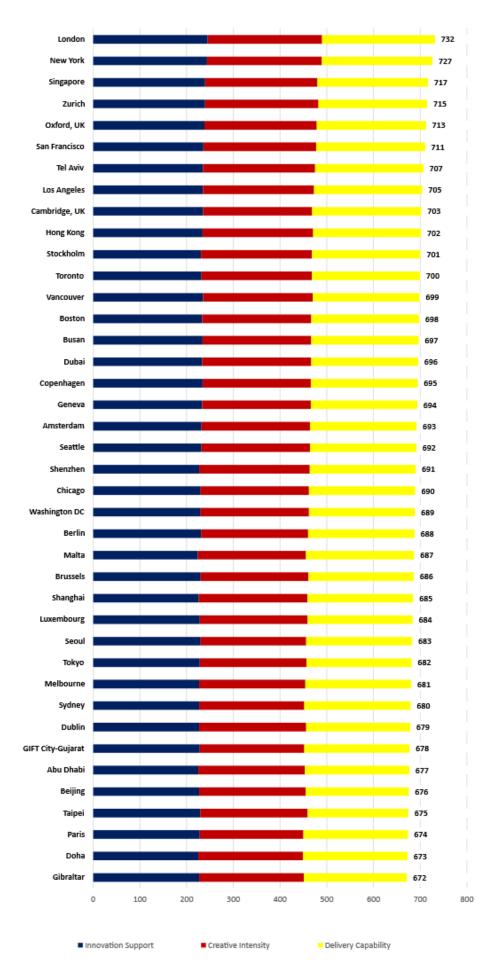
SCI 8	Combra	Innovetio	n Sunnort	SCI Dimensions Support Creative Intensity			Delivery Capability		
Ranking	Centre		n Support						
4	La calla c	Rank	Rating	Rank	Rating	Rank	Rating		
1	London	1	245	2	245	1	242		
2	New York	2	244	1	246	2	237		
3	Singapore	3	240	5	240	3	237		
4	Zurich	4	239	3	243	6	233		
5	Oxford, UK	5	238	5	240	4	234		
6	San Francisco	6	236	4	241	6	233		
7	Tel Aviv	8	235	7	240	9	232		
8	Los Angeles	8	235	8	238	9	232		
9	Cambridge, UK	7	236	16	233	4	234		
10	Hong Kong	11	234	9	237	13	231		
11	Stockholm	20	231	9	237	8	233		
12	Toronto	17	232	12	236	9	232		
13	Vancouver	8	235	13	235	16	229		
14	Boston	14	233	14	234	13	231		
15	Busan	11	234	16	233	15	230		
16	Dubai	14	233	14	234	16	229		
17	Copenhagen	11	234	20	232	16	229		
18	Geneva	14	233	16	233	20	228		
19	Amsterdam	17	232	20	232	19	229		
20	Seattle	17	232	20	232	20	228		

This analysis shows the effect that particular dimensions have on the placing of centres in the SCI. In particular:

- Leading centres have a spread of strengths across the dimensions.
- Individual centres have differing areas of strength. Hong Kong and Stockholm, for example, are closely matched in their overall rank, but have different profiles in the dimensions.

The SCI 8 results showing the contribution of each dimension for the top 40 centres are shown in Chart 1.

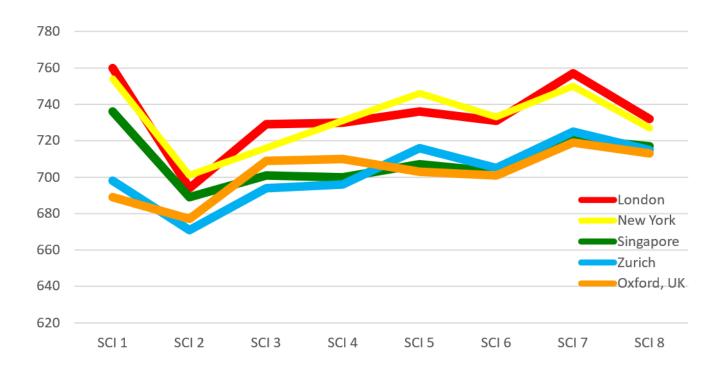
Chart 1 | SCI 8: Contribution Of The Dimensions To Overall Ratings: Top 40 Centres



Top Five Centres

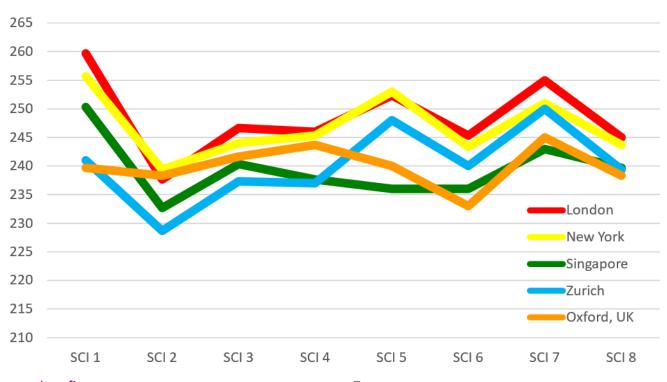
Among the top five centres in the SCI, London and New York have a clear lead over the following centres.

Chart 2 | The Top Five Centres Over Time



The top five places in Innovation Support in SCI 8 mirror the top five ranked centres overall.

Chart 3 | Top Five Centres - Innovation Support - Ratings Over Time



In the Creative Intensity dimension, New York takes first place just ahead of London. Zurich is in third position on this measure.

260 250 240 230 London 220 New York Singapore 210 Zurich Oxford, UK 200 190 SCI 6 SCI 1 SCI 2 SCI 3 SCI 4 SCI 5 SCI 7 SCI8

Chart 4 | Top Five Centres - Creative Intensity Ratings Over Time

For Delivery Capability, London again takes first place, with New York second and Singapore third. Oxford, UK overtook Zurich on this measure.

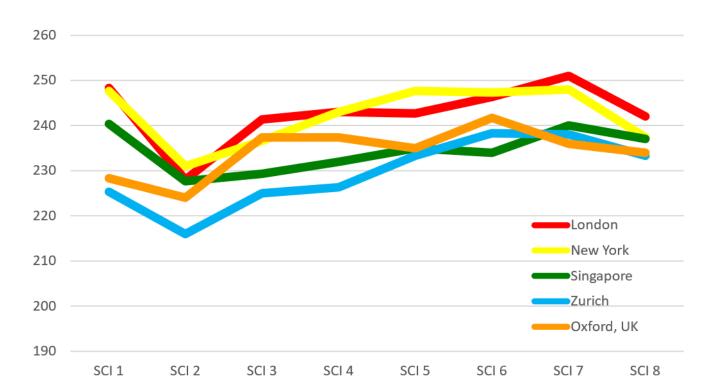


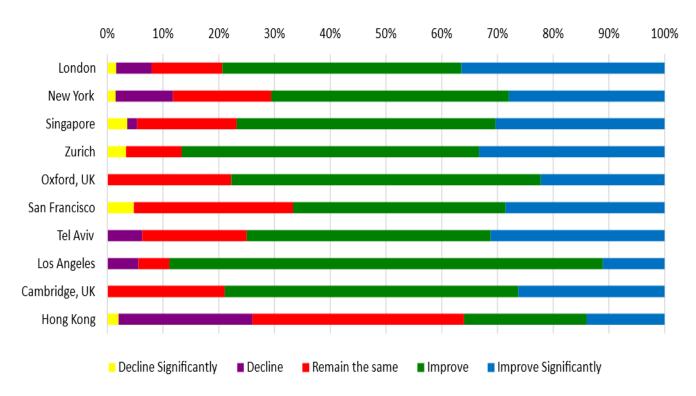
Chart 5 | Top Five Centres - Delivery Capability - Ratings Over Time

SCI 8: Further Analysis

Future Performance

We asked respondents to the SCI survey to assess whether the centres they rated were likely to improve, decline, or stay the same in relation to their innovation and technology offerings over the next two to three years. The results for the top 10 centres are shown in Chart 6. For all centres in this group other than Hong Kong, the majority of respondents thought that the centre would improve over this period. Los Angeles has the highest proportion of those rating its performance who consider that it will improve or improve significantly over the next period.

Chart 6 | Future Performance - Top 10 Centres



"Regulation is clearly a factor in what can be achieved and attempted, and is everywhere at the mercy of the political environment. Political instability, the degree of political authoritarianism, and its accompanying networks of favoured players can undermine capabilities to an uncomfortable degree."

SECRETARY GENERAL, PROFESSIONAL SERVICES BODY, MALTA

Areas Of Competitiveness

SCI 8 is created using 135 instrumental factors which relate to a range of aspects of competitiveness, including measures relating to technology development. These factors are grouped into six broad areas of competitiveness: Technology, Financial Services, Reputational, Business Environment, Human Capital, and Infrastructure.

Areas of

These areas and the instrumental factor themes which comprise each area are shown in Chart 7.

Innovation

Attractiveness

And Cultural

Diversity Comparative

Positioning With

Other Centres



Financial

Services

Depth And

Breadth Of

Industry Clusters

Availability Of

Capital

Market Liquidity

Economic

Output

Technology

Factors

Legal

Documentation

Identity

Payments



Market

Quality Of Life

Education &

Development

Infrastructure

Transport

Infrastructure

Sustainable

Development

Competitiveness

Macroeconomic

Environment

Institutional &

Regulatory

Environment

To assess centres' technology and innovation offerings against each of these areas, the SCI model is run for each area separately. The top ranked 15 centres in each sub-index are shown in Table 3.

Table 3 | Top 15 Centres By Areas Of Competitiveness

Rank	Technology	Business Environment	Human Capital	Infrastructure	Financial Sector Development	Reputational
1	London	London	London	London	London	London
2	New York	New York	New York	New York	New York	New York
3	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore
4	Zurich	Zurich	Zurich	Zurich	Zurich	Zurich
5	San Francisco	Tel Aviv	Tel Aviv	San Francisco	San Francisco	San Francisco
6	Copenhagen	San Francisco	San Francisco	Toronto	Los Angeles	Tel Aviv
7	Stockholm	Oxford, UK	Dubai	Tel Aviv	Washington DC	Los Angeles
8	Tel Aviv	Hong Kong	Geneva	Vancouver	Chicago	Stockholm
9	Los Angeles	Cambridge, UK	Oxford, UK	Stockholm	Dubai	Dubai
10	Geneva	Los Angeles	Copenhagen	Oxford, UK	Berlin	Berlin
11	Busan	Busan	Los Angeles	Los Angeles	Cambridge, UK	Oxford, UK
12	Cambridge, UK	Amsterdam	Toronto	Busan	Boston	Cambridge, UK
13	Hong Kong	Copenhagen	Cambridge, UK	Cambridge, UK	Geneva	Geneva
14	Oxford, UK	Toronto	Vancouver	Hong Kong	Seattle	Seattle
15	Washington DC	Dubai	Brussels	Dubai Oxford, UK		Busan
			ā			

The leading centres in the index have a balance of strengths across all six areas of competitiveness. Some centres have distinct areas of strength, for example, Dubai is very strong in human capital compared with its overall rank, and technology, and Toronto scores well for infrastructure.

Index Ranking For Technology

As shown in Table 3, we have conducted an analysis of the assessments provided by respondents using only the instrumental factors that have a direct relationship to technology. We compare this analysis with the main index in Table 4. The plus and minus figures show the difference between the main index and the index calculated using only technology factors.

Comparing the ranking using only technology factors with the overall SCI ranking makes minor differences for some centres. However, in the technology ranking, Copenhagen, Stockholm, Geneva, Busan, and Washington DC gain a significant advantage.

Table 4 | Top 15 Centres Using All Factors And Only Technology Factors

SCI 8					
Rank	All Factors	Technology Factors			
1	London	London			
2	New York	New York			
3	Singapore	Singapore			
4	Zurich	Zurich			
5	Oxford, UK	San Francisco (+1)			
6	San Francisco	Copenhagen (+11)			
7	Tel Aviv	Stockholm (+4)			
8	Los Angeles	Tel Aviv (-1)			
9	Cambridge, UK	Los Angeles (-1)			
10	Hong Kong	Geneva (+8)			
11	Stockholm	Busan (+4)			
12	Toronto	Cambridge, UK (-3)			
13	Vancouver	Hong Kong (-3)			
14	Boston	Oxford, UK (-9)			
15	Busan	Washington DC (+8)			

The designation of Busan as a blockchain regulatory-free zone enabled this city to attract young and ambitious FinTech entrepreneurs.

DEPUTY MANAGER, INVESTMENT FIRM, BUSAN

Table 5 shows the top 10 instrumental factors in terms of their correlation with the SCI ranking. This shows the impact of both finance and FinTech measures, but also the contribution of infrastructure, innovation, talent development, wealth, and safe and effective governance on developing an innovation ecosystem.

Table 5 | Top 10 Instrumental Factors By R Squared Correlation

Instrumental Factor	R Squared
Fintech Activity Index	0.593
Urban Mobility Readiness Index	0.536
The Global Green Finance Index	0.516
The Global Financial Centres Index	0.510
Safe Cities Index	0.496
Fintech Index (GFCI)	0.496
Global Innovation Index	0.484
Government Effectiveness	0.453
World Talent Rankings	0.426
Adjusted Net National Income Per Capita	0.421

Focusing only on the instrumental factors which relate to technology, the factors most closely correlated in terms of their R Squared relationship with the SCI ratings are set out in Table 6.

Table 6 | Top 10 Technology Instrumental Factors By R Squared Correlation

Technology Factors	R Squared
Fintech Activity Index	0.593
FinTech Index (GFCI)	0.496
Smart City Index	0.408
Technological Infrastructure	0.363
Telecommunication Infrastructure Index	0.340
E-Government Development Index	0.277
Scientific Infrastructure	0.266
Creative Outputs	0.257
E-Participation Index	0.226
Blockchain activity	0.218

Commentary On Factors

The SCI survey asks respondents to comment on factors that affect the development of technology and innovation in centres, and in particular regulation, taxation, and the availability of skills. The results are summarised in Table 7.

Table 7 | Commentary On Areas Of Competitiveness

Area Of Competitiveness	Number Of Mentions	Main Themes
Regulatory Environment	48	 The regulatory environment needs to encourage and incentivise the development of new technologies and applications. The regulatory environment needs to be friendly and regulators need to understand the stakeholder requirements well.
Taxation	44	 Taxation is rarely a major factor in investment decisions or for business location. Innovation investment can be encouraged through the tax system.
The Availability Of Skills	41	 Talent is migrating to places where there is demand, and people can see that they have a future. There is a shortage of technology and scientific skills across many economies. This can be addressed both by local incubation of talent, and by attracting talent from elsewhere.

"Investment decisions are no more solely based on taxation. Taxation rates can vary but no investor will invest in a climate where there is over-regulation, or no dialogue with government and regulators. Comparisons need to be made between the regulatory approaches adopted by various jurisdictions, and between the incentives put in place by jurisdictions to attract talents and existing incentives, such as those offered in Mauritius."

DIRECTOR, PROFESSOINAL SERVICES FIRM, MAURITIUS

Reputation

We analyse the reputational advantage of centres by comparing the average assessment given in the survey to the overall SCI 8 rating. Centres with a high reputational advantage are perceived by respondents to the survey to be performing better than the underlying data may suggest and may need to pay attention to the strength of their underlying ecosystem. Those with a negative reputational advantage may need to market their strengths better to achieve a truer perception of their performance. The top 15 and lowest 15 centres on this measure are shown in Tables 8 and 9.

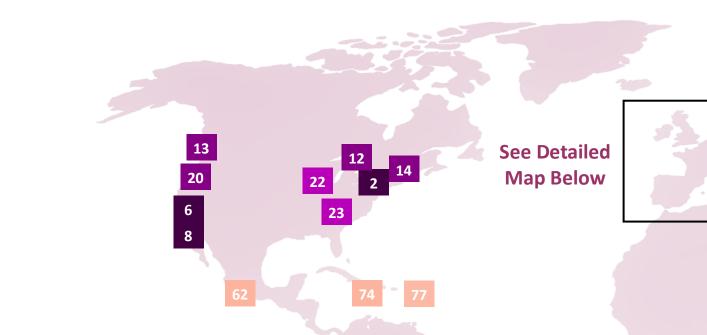
Table 8 | Top 15 Centres By Reputational Advantage

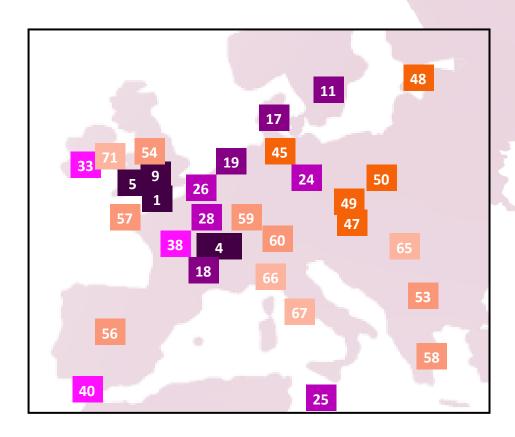
Centre - Top 15	Weighted Average Assessment	SCI 8 Rating	SCI 8 Reputational Advantage
Busan	850	697	153
San Francisco	851	711	140
Tel Aviv	836	707	129
Geneva	821	694	127
Copenhagen	816	695	121
Stockholm	809	701	108
Zurich	815	715	100
Oxford, UK	805	713	92
London	817	732	85
New York	810	727	83
Sydney	763	680	83
Brussels	765	686	79
Los Angeles	782	705	77
Vancouver	776	699	77
Singapore	792	717	75

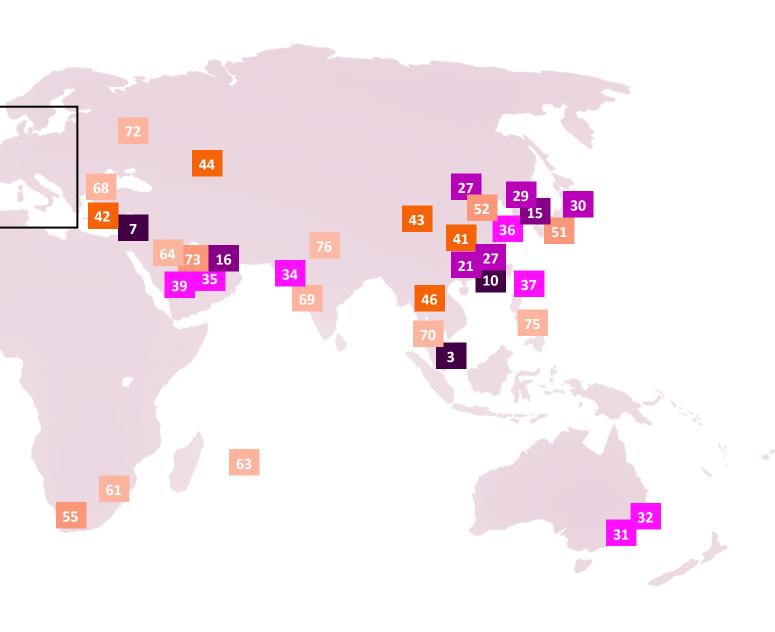
Table 9 | Lowest 15 Centres By Reputational Advantage

Centre - Lowest 15	Weighted Average Assessment	SCI 8 Rating	SCI 8 Reputational Advantage
Warsaw	587	647	-60
Istanbul	584	644	-60
Tokyo	619	682	-63
Cayman Islands	573	638	-65
Chengdu	590	669	-79
Mexico City	570	650	-80
Johannesburg	554	651	-97
Bahrain	541	639	-98
Dublin	577	679	-102
Isle of Man	537	641	-104
Cape Town	552	657	-105
Athens	547	654	-107
Seoul	568	683	-115
Bangkok	524	666	-142
British Virgin Islands	450	615	-165

The SCI 8 World - Centres In The Index







The numbers indicate the rank of each centre in SCI 8.

An interactive map showing the data for each centre is at https://www.longfinance.net/programmes/financial-centre-futures/smart-centres-index/sci-8-explore-data/sci-8-map/

Regional Analysis

In our analysis of the SCI data, we look at six regions of the world to explore centres' strengths in technology and finance.

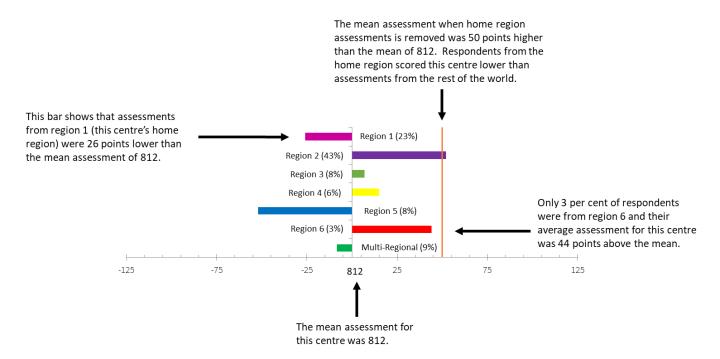
Alongside the ranks and ratings of centres, we investigate the average assessments received by regions and centres in more detail. We display this analysis in charts, which show:

- The mean assessment provided to that centre.
- The difference in the mean assessment when home region assessments are removed from the analysis.
- The difference between the mean and the assessments provided by respondents based in other regional centres.
- The proportion of assessments provided by each region.

Chart 8 shows an example of this analysis. Coloured bars to the left of the vertical axis indicate that respondents from that region gave lower than average assessments. Bars to the right indicate respondents from that region gave higher than average assessments. Assessments given to a centre by people based in that centre are excluded to remove home centre bias.

The additional vertical axis (in red) shows the mean of assessments when assessments from the home region are removed. The percentage figure noted by each region indicates the percentage of the total number of assessments that are from that region.

Chart 8 | Example: Assessments Compared With The Mean For A Centre



North America

- All North American centres featured in SCI 8 are in the top 25 in the world.
- Toronto improved its rank significantly in SCI 8.
- Only respondents from Western Europe and Eastern Europe & Central Asia score New York lower than the overall average.

Table 10 | North American Centres In SCI 8: Ranks And Ratings

Contro	SCI 8		S	SCI 7		Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
New York	2	727	2	750	0	▼23
San Francisco	6	711	3	732	▼ 3	▼ 21
Los Angeles	8	705	8	718	0	▼ 13
Toronto	12	700	20	706	▲8	▼6
Vancouver	13	699	18	708	\$ 5	▼ 9
Boston	14	698	12	714	▼2	▼ 16
Seattle	20	692	11	715	▼ 9	▼23
Chicago	22	690	16	710	▼ 6	▼ 20
Washington DC	23	689	26	694	▲ 3	▼ 5

Table 11 | North American Centres In SCI 8: SCI Dimensions

		SCI 8 Dir	mensions			
Cantus	Innovatio	n Support	Creative	Intensity	Delivery Capability	
Centre	Rank	Rating	Rank	Rating	Rank	Rating
New York	2	244	1	246	2	237
San Francisco	6	236	4	241	6	233
Los Angeles	8	235	8	238	9	232
Toronto	17	232	12	236	9	232
Vancouver	8	235	13	235	16	229
Boston	14	233	14	234	13	231
Seattle	17	232	20	232	20	228
Chicago	22	230	23	232	20	228
Washington DC	22	230	23	232	25	227

Chart 9 | New York Average Assessments - Difference From The Mean

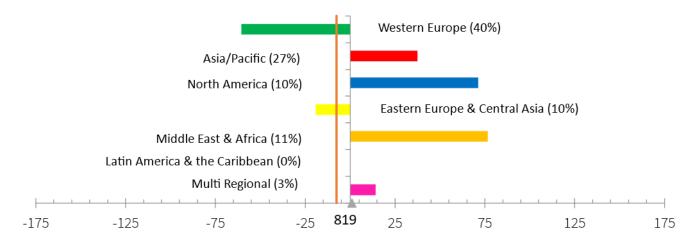
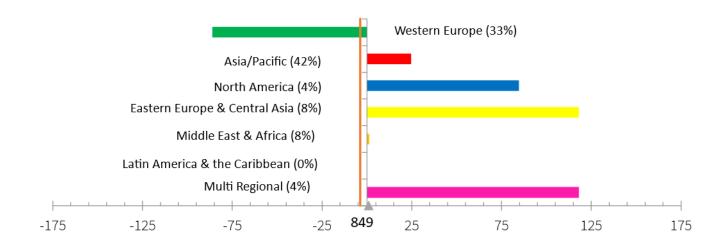
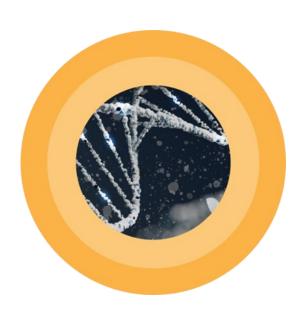


Chart 10 | San Francisco Average Assessments – Difference From The Mean





Asia/Pacific

- Singapore maintained its leading position in the region, with Hong Kong in second place. Both centres feature in the world top 10.
- Ten centres in the region maintained or improved their ranking.
- Respondents from Asia/Pacific and Latin America & The Caribbean rated Singapore lower than average.

Table 12 | Top 15 Asia/Pacific Centres In SCI 8: Ranks And Ratings

Centre	SC	18	SC	SCI 7		Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Singapore	3	717	6	721	▲ 3	▼4
Hong Kong	10	702	10	716	0	▼ 14
Busan	15	697	19	707	4	▼ 10
Shenzhen	21	691	25	696	A 4	▼5
Shanghai	27	685	27	692	0	▼7
Seoul	29	683	28	691	▼1	▼8
Tokyo	30	682	22	704	▼8	▼22
Melbourne	31	681	39	672	▲ 8	▲ 9
Sydney	32	680	35	682	▲ 3	▼2
GIFT City-Gujarat	34	678	42	668	▲ 8	▲ 10
Beijing	36	676	34	683	▼2	▼7
Taipei	37	675	40	671	▲ 3	4
Guangzhou	41	671	37	679	▼4	▼8
Chengdu	43	669	46	661	▲ 3	▲8
Bangkok	46	666	36	680	▼ 10	▼ 14

Table 13 | Top 15 Asia/Pacific Centres In SCI 8: SCI Dimensions

SCI 8 Dimensions							
Contro	Innovation	Support	Creative Intensity		Delivery Capability		
Centre	Rank	Rating	Rank	Rating	Rank	Rating	
Singapore	3	240	5	240	3	237	
Hong Kong	11	234	9	237	13	231	
Busan	11	234	16	233	15	230	
Shenzhen	33	227	11	237	26	227	
Shanghai	40	226	19	233	29	227	
Seoul	22	230	36	226	26	227	
Tokyo	28	228	29	229	32	225	
Melbourne	33	227	34	227	26	227	
Sydney	33	227	38	225	20	228	
GIFT City-Gujarat	28	228	41	224	30	226	
Beijing	33	227	33	227	41	222	
Taipei	27	229	28	230	58	216	
Guangzhou	53	221	34	227	37	223	
Chengdu	42	225	41	224	44	220	
Bangkok	33	227	55	218	42	221	

Chart 11 | Singapore Average Assessments – Difference From The Mean

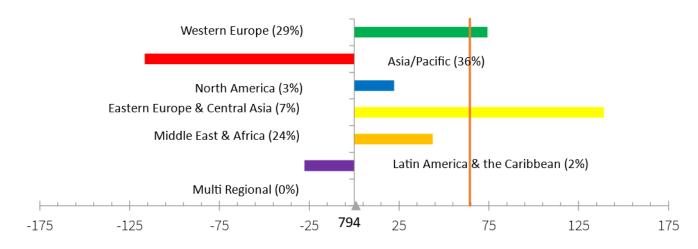
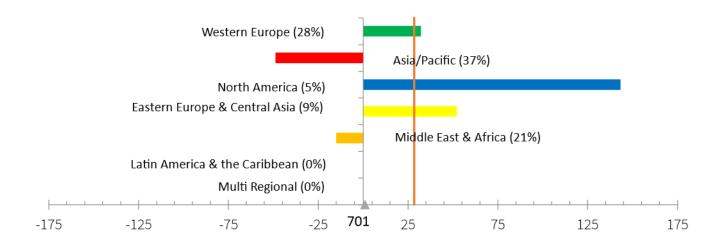


Chart 12 | Hong Kong Average Assessments – Difference From The Mean



"The Chinese government singularly drives technology advances and their applications."

CHAIRMAN, INVESTMENT FIRM, SHANGHAI



Western Europe

- London takes the top position in the region, with Zurich, Oxford, Cambridge, and Stockholm also in the top 15.
- 17 of the centres in the region retained or improved their ranking, reversing the trend from SCI 7, and with Paris up 17 rank places.
- Respondents from Western Europe and the Middle East & Africa rated London lower than average.

Table 14 | Top 15 Western European Centres In SCI 8: Ranks And Ratings

Contro	sc	18	S	SCI 7		Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
London	1	732	1	757	0	▼ 25
Zurich	4	715	4	725	0	▼ 10
Oxford, UK	5	713	7	719	▲2	▼ 6
Cambridge, UK	9	703	13	713	A 4	▼ 10
Stockholm	11	701	15	711	A 4	▼ 10
Copenhagen	17	695	14	712	▼ 3	▼ 17
Geneva	18	694	23	703	\$ 5	▼ 9
Amsterdam	19	693	24	698	\$ 5	▼ 5
Berlin	24	688	32	686	▲8	A 2
Malta	25	687	17	709	▼8	▼22
Brussels	26	686	30	688	A 4	▼2
Luxembourg	28	684	33	685	\$ 5	▼1
Dublin	33	679	41	669	▲8	1 0
Paris	38	674	55	647	▲ 17	▲ 27
Gibraltar	40	672	45	664	▲ 5	▲8

Table 15 | Top 15 Western European Centres In SCI 8: SCI Dimensions

SCI 8 Dimensions								
Centre	Innovat	ion Support	Creativ	Creative Intensity		Capability		
Centre	Rank	Rating	Rank	Rating	Rank	Rating		
London	1	245	2	245	1	242		
Zurich	4	239	3	243	6	233		
Oxford, UK	5	238	5	240	4	234		
Cambridge, UK	7	236	16	233	4	234		
Stockholm	20	231	9	237	8	233		
Copenhagen	11	234	20	232	16	229		
Geneva	14	233	16	233	20	228		
Amsterdam	17	232	20	232	19	229		
Berlin	20	231	29	229	20	228		
Malta	47	224	25	231	9	232		
Brussels	22	230	26	231	31	225		
Luxembourg	28	228	26	231	32	225		
Dublin	33	227	29	229	37	223		
Paris	28	228	46	222	34	224		
Gibraltar	33	227	41	224	42	221		

Chart 13 | London Average Assessments – Difference From The Mean

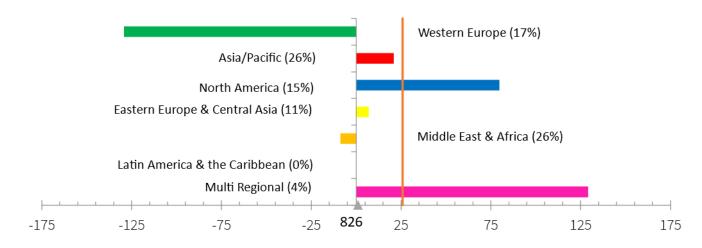
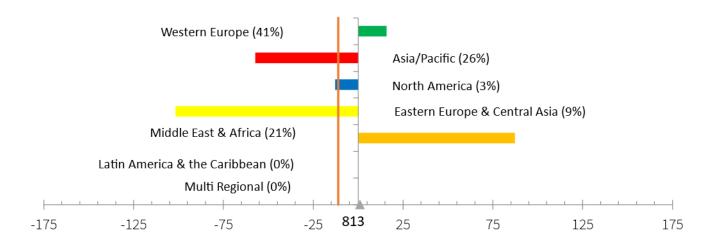


Chart 14 | Zurich Average Assessments – Difference From The Mean



"Trust and the regulatory environment is vital for the enhancement of the financial services and those countries who do well in future will have to have trusted systems and political stability too. Dubai does provide this very well as we see it."

OWNER, INVESTMENT FUND, MAURITIUS

Middle East & Africa

- Tel Aviv continues to lead the region, with Dubai in second place. Both centres improved in the ranking.
- Mauritius entered the index for the first time, taking 63rd place overall.
- Respondents from Asia/Pacific, North America and the Middle East & Africa score Tel Aviv higher than average.

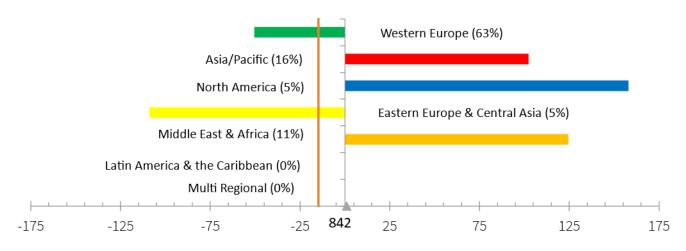
Table 16 | Middle Eastern & African Centres In SCI 8: Ranks And Ratings

Centre	SC	CI 8	SCI 7		Change In	Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Tel Aviv	7	707	9	717	A 2	▼ 10
Dubai	16	696	21	705	\$ 5	▼ 9
Abu Dhabi	35	677	31	687	▼ 4	▼ 10
Doha	39	673	29	690	▼ 10	▼ 17
Cape Town	55	657	50	655	▼ 5	▲2
Johannesburg	61	651	58	640	▼ 3	▲ 11
Mauritius	63	649	New	New	New	New
Riyadh	64	648	57	645	▼ 7	▲ 3
Bahrain	73	639	60	636	▼ 13	▲ 3

Table 17 | Middle Eastern & African Centres In SCI 8: SCI Dimensions

		SCI 8 D	imensions			
Centre	Innovat	ion Support	Creativ	e Intensity	Delivery	Capability
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Tel Aviv	8	235	7	240	9	232
Dubai	14	233	14	234	16	229
Abu Dhabi	42	225	32	228	34	224
Doha	42	225	41	224	34	224
Cape Town	53	221	55	218	54	218
Johannesburg	49	223	73	209	46	219
Mauritius	67	218	64	213	54	218
Riyadh	73	214	55	218	58	216
Bahrain	67	218	76	207	67	214

Chart 15 | Tel Aviv Average Assessments - Difference From The Mean



Western Europe (24%)

Asia/Pacific (19%)

North America (8%)

Middle East & Africa (35%)

Chart 16 | Dubai Average Assessments – Difference From The Mean

Eastern Europe & Central Asia

-125

-175

Latin America & the Caribbean (0%)

-75

Multi Regional (1%)

• Cyprus entered the index for the first time, taking first place in the region. A positive view of Cyprus was particularly apparent from respondents in the Middle East & Africa.

725

25

75

125

175

-25

- Astana rose 9 rank places to take second place in the region, with Budapest and Athens improving over 10 places.
- Respondents from the Middle East & Africa also ranked Astana higher than the global average.

Table 18 | Eastern European & Central Asian Centres In SCI 8: Ranks And Ratings

Centre	SC	18	SCI 7		Change In	Change In
Centre	Rank	Rating	Rank	Rating	Rank	Rating
Cyprus	42	670	New	New	New	New
Astana	44	668	53	652	▲ 9	▲ 16
Tallinn	48	664	44	666	▼ 4	▼2
Prague	49	663	48	657	▼ 1	A 6
Budapest	50	662	63	630	▲ 13	▲32
Sofia	53	659	43	667	▼ 10	▼8
Athens	58	654	70	612	▲ 12	▲ 42
Warsaw	65	647	69	614	A 4	▲33
Istanbul	68	644	59	639	▼ 9	\$ 5
Moscow	72	640	67	618	▼ 5	▲ 22

Table 19 | Eastern European & Central Asian Centres In SCI 8: SCI Dimensions

SCI 8 Dimensions								
Centre	Innovat	ion Support	Creativ	e Intensity	Delivery	Capability		
Centre	Rank	Rating	Rank	Rating	Rank	Rating		
Cyprus	42	225	45	223	40	222		
Astana	28	228	48	221	46	219		
Tallinn	42	225	52	219	44	220		
Prague	40	226	61	214	37	223		
Budapest	22	230	63	214	53	218		
Sofia	71	215	38	225	46	219		
Athens	47	224	60	215	63	215		
Warsaw	53	221	64	213	70	213		
Istanbul	69	217	64	213	67	214		
Moscow	75	213	70	211	58	216		

Chart 17 | Cyprus Average Assessments – Difference From The Mean

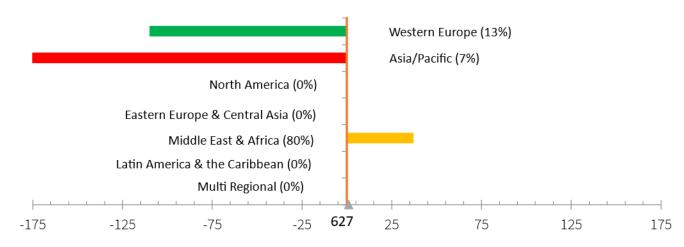
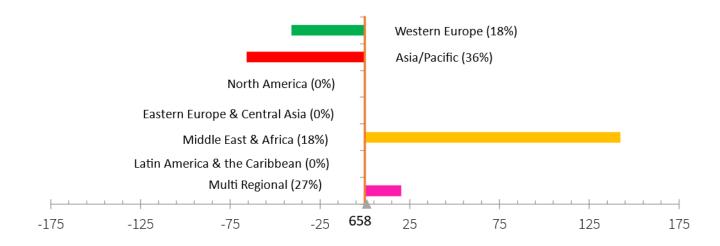


Chart 18 | Astana Average Assessments – Difference From The Mean



Latin America & The Caribbean

- Mexico City held on to its lead in the region and rose six rank places.
- Cayman Islands fell in the ranking and British Virgin Islands entered the index for the first time.
- Mexico City was rated highly by respondents from Western Europe and very much higher than average by those from Eastern Europe & Central Asia and the Middle East & Africa.

Table 20 | Latin America & The Caribbean Centres In SCI 8: Ranks And Ratings

Centre	SCI 8		SCI 7		Change In	Change In
	Rank	Rating	Rank	Rating	Rank	Rating
Mexico City	62	650	68	617	A 6	▲33
Cayman Islands	74	638	72	609	▼2	▲29
British Virgin Islands	77	615	New	New	New	New

Table 21 | Latin America & The Caribbean Centres In SCI 8: SCI Dimensions

SCI 8 Dimensions								
Centre	Innovat	ion Support	Creative	e Intensity	Delivery Capability			
	Rank	Rating	Rank	Rating	Rank	Rating		
Mexico City	53	221	72	210	46	219		
Cayman Islands	70	216	73	209	70	213		
British Virgin Islands	76	212	77	201	77	202		

Chart 19 | Mexico City Average Assessments – Difference From The Mean

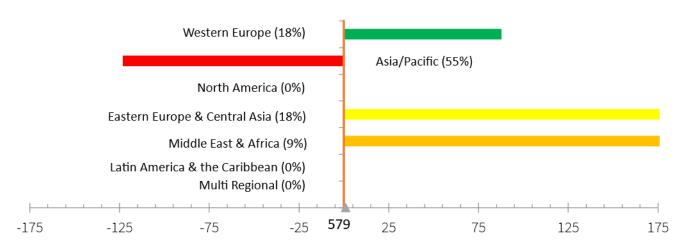
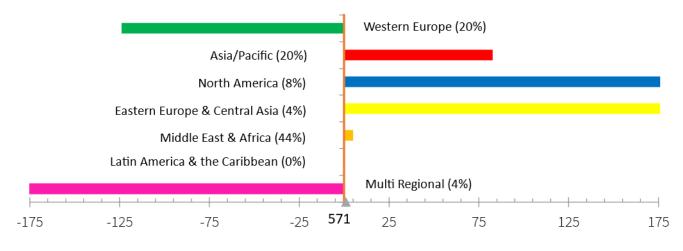


Chart 20 | Cayman Islands Average Assessments – Difference From The Mean



Appendix 1: Assessment Details

Table 22 | Details Of SCI Assessments By Centre

Centre	SCI 8	SCI 8	1	Assessmen	ts
Centre	Rank	Rating	Number	Average	St. Dev
London	1	732	72	826	188
New York	2	727	73	819	182
Singapore	3	717	59	794	178
Zurich	4	715	34	813	182
Oxford, UK	5	713	12	789	232
San Francisco	6	711	24	849	168
Tel Aviv	7	707	19	842	148
Los Angeles	8	705	21	790	183
Cambridge, UK	9	703	24	753	231
Hong Kong	10	702	57	701	207
Stockholm	11	701	12	811	106
Toronto	12	700	18	767	126
Vancouver	13	699	12	778	92
Boston	14	698	23	704	249
Busan	15	697	43	846	221
Dubai	16	696	79	725	212
Copenhagen	17	695	9	819	110
Geneva	18	694	19	809	167
Amsterdam	19	693	32	728	229
Seattle	20	692	7	771	121
Shenzhen	21	691	10	733	184
Chicago	22	690	18	737	191
Washington DC	23	689	12	733	207
Berlin	24	688	29	707	231
Malta	25	687	11	697	143
Brussels	26	686	8	763	122
Shanghai	27	685	26	710	206
Luxembourg	28	684	29	709	208
Seoul	29	683	34	591	280
Tokyo	30	682	31	639	295
Melbourne	31	681	5	713	170
Sydney	32	680	11	758	145
Dublin	33	679	20	572	306
GIFT City-	34	678	10	660	164
Abu Dhabi	35	677	35	679	232
Beijing	36	676	38	675	191
Taipei	37	675	7	652	257
Paris	38	674	28	642	237

	SCI 8	SCI 8	Assessments		
Centre	Rank	Rating	Number	Average	St. Dev
Doha	39	673	14	671	198
Gibraltar	40	672	12	686	218
Guangzhou	41	671	7	686	132
Cyprus	42	670	15	627	203
Chengdu	43	669	6	606	192
Astana	44	668	11	658	172
Hamburg	45	667	7	648	180
Bangkok	46	666	12	544	230
Vienna	47	665	9	711	126
Tallinn	48	664	11	630	185
Prague	49	663	13	631	147
Budapest	50	662	11	648	154
Osaka	51	661	18	635	236
Tianjin	52	660	7	614	68
Sofia	53	659	6	628	137
Edinburgh	54	658	14	681	175
Cape Town	55	657	17	553	226
Madrid	56	656	11	655	174
Guernsey	57	655	10	627	269
Athens	58	654	9	530	215
Frankfurt	59	653	25	672	236
Munich	60	652	11	667	172
Johannesburg	61	651	21	557	239
Mexico City	62	650	11	579	213
Mauritius	63	649	17	686	212
Riyadh	64	648	6	633	160
Warsaw	65	647	18	593	161
Milan	66	646	10	697	192
Rome	67	645	5	713	84
Istanbul	68	644	8	621	125
Mumbai	69	643	17	622	196
Kuala Lumpur	70	642	9	611	142
Isle of Man	71	641	14	521	282
Moscow	72	640	17	582	248
Bahrain	73	639	10	587	148
Cayman Islands	74	638	25	571	245
Manila Now Dolbi	75 76	637	6 9	661	199
New Delhi British Virgin Islands	76 77	636	16	663 442	106 168

Table 23 | Details Of Assessments Of SCI Dimensions By Centre

	SCI Dimensions					
Centre	Innovation Support		Creative Intensity		Delivery Capability	
	Average	St. Dev	Average	St. Dev	Average	St. Dev
London	832	187	826	182	821	197
New York	832	188	826	174	800	183
Singapore	802	165	788	189	793	181
Zurich	847	169	803	195	788	182
Oxford, UK	792	254	775	242	800	200
San Francisco	829	233	879	110	838	161
Tel Aviv	853	139	821	155	853	150
Los Angeles	795	183	786	206	790	161
Cambridge, UK	771	227	729	229	758	236
Hong Kong	702	207	711	204	691	211
Stockholm	817	103	808	116	808	100
Toronto	750	115	761	154	789	108
Vancouver	792	90	775	97	767	89
Boston	700	270	700	237	713	240
Busan	853	220	842	224	842	218
Dubai	733	209	729	212	713	215
Copenhagen	867	71	767	150	822	109
Geneva	842	171	789	179	795	151
Amsterdam	741	218	725	233	719	236
Seattle	771	111	771	125	771	125
Shenzhen	690	191	790	152	720	210
Chicago	750	169	728	202	733	203
Washington DC	758	211	742	207	700	204
Berlin	738	254	676	229	707	210
Malta	700	155	673	101	718	172
Brussels	763	141	763	151	763	74
Shanghai	712	188	715	219	704	211
Luxembourg	734	214	700	202	693	207
Seoul	585	288	588	275	600	275
Tokyo	635	294	639	311	642	280
Melbourne	740	152	720	179	680	179
Sydney	791	145	727	162	755	129
Dublin	590	316	600	287	525	316
GIFT City-Gujarat	670	200	620	162	690	129
Abu Dhabi	674	243	689	240	674	212
Beijing	661	202	684	195	679	176
Taipei	686	241	657	257	614	273
Paris	657	227	643	238	625	247

Table 23 (Continued) | Details Of Assessments Of SCI Dimensions By Centre

	SCI Dimensions						
Centre		Innovation Support		Creative Intensity		Delivery Capability	
	Average	St. Dev	Average	St. Dev	Average	St. Dev	
Doha	679	181	664	224	671	190	
Gibraltar	717	204	650	228	692	223	
Guangzhou	614	273	686	69	757	53	
Cyprus	633	216	613	207	633	188	
Chengdu	583	240	650	152	583	183	
Astana	745	137	636	157	591	221	
Hamburg	643	223	671	180	629	138	
Bangkok	525	256	550	247	558	188	
Vienna	744	151	689	105	700	122	
Tallinn	636	211	645	186	609	158	
Prague	638	189	608	138	646	113	
Budapest	691	202	636	143	618	117	
Osaka	650	220	633	233	622	256	
Tianjin	600	58	586	69	657	79	
Sofia	633	175	617	133	633	103	
Edinburgh	693	216	664	174	686	135	
Cape Town	547	227	541	243	571	208	
Madrid	655	186	655	151	655	186	
Guernsey	640	272	650	259	590	277	
Athens	578	249	489	190	522	205	
Frankfurt	708	222	648	235	660	252	
Munich	664	201	691	151	645	163	
Johannesburg	586	250	533	242	552	227	
Mexico City	564	262	582	227	591	151	
Mauritius	735	180	647	235	676	222	
Riyadh	650	138	600	167	650	176	
Warsaw	617	154	589	181	572	149	
Milan	710	238	720	187	660	151	
Rome	760	55	720	84	660	114	
Istanbul	588	146	663	106	613	125	
Mumbai	629	186	618	210	618	191	
Kuala Lumpur	556	113	656	174	622	139	
Isle of Man	557	241	507	295	500	311	
Moscow	600	262	565	242	582	240	
Bahrain	580	140	590	152	590	152	
Cayman Islands	568	238	564	253	580	243	
Manila	550	207	750	217	683	172	
New Delhi	633	100	678	109	678	109	
British Virgin Islands	494	157	406	165	425	181	
www.longfinanco.not			20				

Appendix 2: Respondents' Details

Table 24 | Respondents By Industry Sector

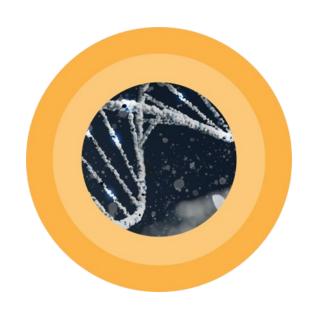
Industry Sector	Number Of Respondents	Percentage Of Respondents
Banking	15	6%
Debt Capital Markets	3	1%
Equity Capital Markets	3	1%
Insurance	4	2%
Investment Management	45	19%
Knowledge	23	10%
Policy and Public Finance	29	13%
Professional Services	44	19%
Technology	47	20%
Trading	8	3%
Not Specified	11	5%
Total	232	100%

Table 25 | Respondents By Region

Region	Number Of Respondents	Percentage Of Respondents
Western Europe	50	22%
Asia/Pacific	77	33%
North America	16	7%
Middle East & Africa	62	27%
Eastern Europe & Central Asia	20	9%
Latin America & the	2	1%
Multi-Regional	5	2%
Total	232	100%

Table 26 | Respondents By Size Of Organisation

Size Of Organisation	Number Of Respondents	Percentage Of Respondents
Fewer than 50	113	49%
50 to 100	32	14%
100 to 500	25	11%
500 to 1,000	15	6%
1,000 to 2,000	14	6%
2,000 to 5,000	12	5%
More than 5,000	21	9%
Not Specified	0	0%
Total	232	100%



Appendix 3: Methodology

The SCI provides ratings for the innovation and technology offerings of commercial and financial centres. The process involves taking two sets of ratings – one from survey respondents and one generated by a statistical model – and combining them into a single rating.

For the first set of ratings, the **Centre Assessments**, respondents use an online questionnaire to rate three dimensions:

- Innovation Support the approach taken to regulation and support for the innovation and technology industry provided by the commercial ecosystem.
- Creative Intensity the extent to which technology and innovative industries are embedded in the economy of the centre.
- Delivery Capability the quality of the work being undertaken in the field in the centre.

Ratings are given using a 10 point scale ranging from very poor to excellent. Responses are sought from a range of individuals drawn from the financial services and technology sectors, non-governmental organisations, regulators, universities, and trade bodies.

For the second set of ratings, we use a database of indicators, or **Instrumental Factors**, that contain quantitative data about each centre. We use a machine learning algorithm to investigate the correlation between the financial centre assessments and these Instrumental Factors to predict how each respondent would have rated the centres they do not know. These 135 Instrumental Factors draw on data from a range of sources. A full list of the Instrumental Factors used in the model is in Appendix 4.

The respondents' actual ratings, as well as their predicted ratings for the centres they did not rate, are then combined into a single table to produce ratings for each dimension. These are then added together, using equal weighting, to create the SCI rating.

Factors Affecting The Inclusion Of Centres In The SCI

The questionnaire lists a total of 131 commercial and financial centres which can be rated by respondents. The questionnaire also asks whether there are centres not currently in the survey that will become significant over the next two to three years. Centres which are not currently within the questionnaire and which are mentioned repeatedly in response to this question will be added to the questionnaire for future editions.

We give a centre a SCI rating and ranking if it receives a statistically significant minimum number of assessments from individuals based in other geographical locations - at least 10 in SCI 8. This means that not all 131 centres in the questionnaire receive a ranking. We will keep this number under review for further editions of the index as the number of assessments increases.

We will also develop rules as successive indices are published as to when a centre may be removed from the ranking, for example, if over a 24 month period, a centre has not received a minimum number of assessments.

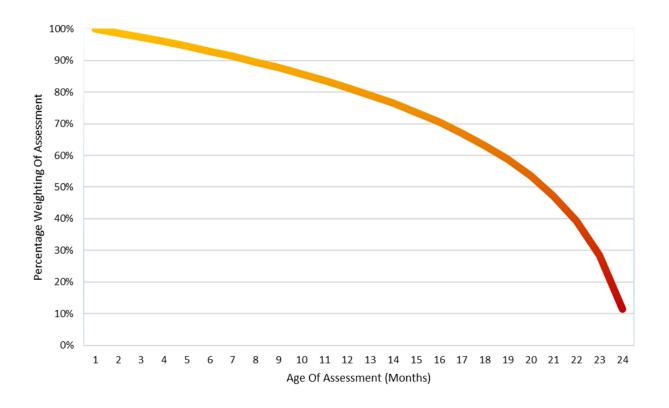
Centre Assessments

Centre assessments are collected via an online questionnaire which runs continuously and is at www.smartcentresindex.net/survey/. A link to this questionnaire is emailed to a target list of respondents at regular intervals. Other interested parties can complete the questionnaire by following the link above.

In calculating the SCI:

- The score given by a respondent to their home centre, and scores from respondents who do not specify a home centre, are excluded from the model this is designed to prevent home centre bias.
- Financial centre assessments are included in the SCI model for 24 months after they have been received we consider this is a period during which assessments maintain their validity.
- Financial centre assessments from the month when the SCI is created are given full weighting with earlier responses given a reduced weighting on a logarithmic scale as shown in Chart 21 this recognises that older ratings, while still valid, are less likely to be up-to-date.

Chart 21 | Reduction In Weighting As Assessments Become Older



Instrumental Factor Data

For the instrumental factors, we have the following data requirements:

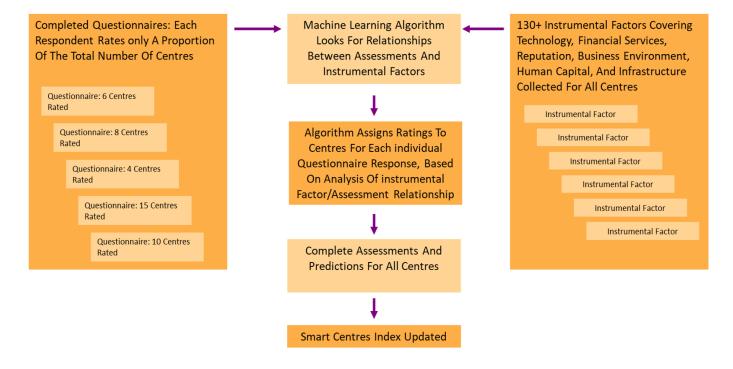
- Data series should come from a reputable body and be derived by a sound methodology.
- Data series should be readily available (ideally in the public domain) and be regularly updated.

The rules on the use of instrumental factor data in the model are as follows:

- Updates to the indices are collected and collated every six months.
- No weightings are applied to indices.
- Indices are entered into the SCI model as directly as possible, whether this is a rank, a derived score, a value, a distribution around a mean, or a distribution around a benchmark.
- If a factor is at a national level, the score will be used for all centres in that country; nation-based factors will be avoided if centre (city)-based factors are available.
- If an index has multiple values for a city or nation, the most relevant value is used.
- If an index is at a regional level, the most relevant allocation of scores to each centre is made (and the method for judging relevance is noted).
- If an index does not contain a value for a particular centre, a blank is entered against that centre (no average or mean is used).

The process of creating the SCI is outlined in Chart 22.

Chart 22 | The SCI Process



Appendix 4: Instrumental Factors

Table 27 | Instrumental Factor Correlation With SCI Ratings - Highest 30 Factors

Instrumental Factors	R-squared
Fintech Activity Index	0.593
Urban Mobility Readiness Index	0.536
The Global Green Finance Index	0.516
The Global Financial Centre Index	0.510
Safe Cities Index	0.496
Fintech Index (GFCI)	0.496
Global Innovation Index	0.484
Government Effectiveness	0.453
World Talent Rankings	0.426
Adjusted Net National Income Per Capita	0.421
Best Countries for Business	0.417
Smart City Index	0.408
Corruption Perception Index	0.381
OECD Country Risk Classification	0.374
Rule Of Law	0.371
World Competitiveness Scoreboard	0.369
Technological Infrastructure	0.363
Control Of Corruption	0.352
Global Power City Index	0.348
Legatum Prosperity Index	0.345
Telecommunication Infrastructure Index	0.340
Business Environment Rankings	0.335
Innovation Cities Global Index	0.332
Household Net Financial Wealth	0.326
Sustainable Economic Development	0.308
Domestic Credit To Private Sector (% Of GDP)	0.307
Regulatory Quality	0.298
International IP Index	0.295
JLL Real Estate Transparency Index	0.286
Quality of Roads	0.279

Table 28 | Technology Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
E-Government Development Index	United Nations	https://publicadministration.un.org/egovkb/Data-Center	N
UN International Sale Of Goods	United Nations	https://treaties.un.org/pages/ViewDetails.aspx?	N
Iso TC307 Participation	International Organisation For Standardisation	https://www.iso.org/committee/6266604.html? view=participation	Y
Internet Censorship Rank	comparitech	https://www.comparitech.com/blog/vpn-privacy/internet-	Υ
Volume Of Bitcoin Trades	Coin Dance	https://coin.dance/volume/localbitcoins	Y
Legal Status Of Bitcoin	Coin Dance	https://coin.dance/poli/legality	Υ
Global Al Index	Tortoise Intelligence	https://www.tortoisemedia.com/intelligence/ai	Υ
E-Participation Index	United Nations	https://publicadministration.un.org/egovkb/Data-Center	N
Fintech Index (GFCI)	Z/Yen	https://www.longfinance.net/programmes/financial-centre-futures/global-financial-centres-index/	Υ
The Global Fintech Index	Findexable	https://findexable.com/	N
Global Cybersecurity Index	ITU	http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCl.aspx	N
Telecommunication Infrastructure Index	United Nations	https://publicadministration.un.org/egovkb/en-us/Data-Center	N
Worldwide Broadband Speed League	Cable	https://www.cable.co.uk/broadband/speed/worldwide-speed-	N
Smart City Index	IMD	https://www.imd.org/smart-city-observatory/smart-city-index/	N
Patent Applications, Residents	The World Bank	https://data.worldbank.org/indicator/IP.PAT.RESD? end=2020&start=1980	N
Fintech Activity Index	World Bank	https://documents.worldbank.org/en/publication/documents- reports/documentdetail/099735504212234006/ p1730060695b370090908c0bf80ed27eba6	N
Global Crypto Ranking	Coincub	https://coincub.com/ranking/q4-2022-global-crypto-ranking/	New
Global Crypto Adoption Index	Chainanalysis	https://go.chainalysis.com/rs/503-FAP-074/images/The% 202023%20Geography%20of%20Cryptocurrency%20Report.pdf? version=0	New
Blockchain Patents By Country	Coincub	https://coincub.com/ranking/blockchain-patent-report-2023/	New
Technological Infrastructure	IMD	https://imd.cld.bz/IMD-World-Competitiveness-Booklet-2023	New
Scientific Infrastructure	IMD	https://imd.cld.bz/IMD-World-Competitiveness-Booklet-2023	New
Knowledge And Technology Outputs	WIPO	https://www.wipo.int/global innovation index/en/2023/	New
Creative Outputs	WIPO	https://www.wipo.int/global_innovation_index/en/2023/	New
Blockchain Activity	Blockspot.io	https://blockspot.io/country/	New
www.longfinance.net		36 www.zy	en.com

Table 29 | Financial Sector Development Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
Capitalisation Of Stock Exchanges	The World Federation of Stock Exchanges	https://focus.world-exchanges.org/issue/april-2023	Υ
Value Of Share Trading	The World Federation of Stock Exchanges	https://focus.world-exchanges.org/issue/april-2023	Y
Volume Of Share Trading	The World Federation of Stock Exchanges	https://statistics.world-exchanges.org/ReportGenerator/ Generator#	Y
Broad Stock Index Levels	The World Federation of Stock Exchanges	https://focus.world-exchanges.org/issue/april-2023	Υ
Value Of Bond Trading	The World Federation of Stock Exchanges	https://statistics.world-exchanges.org/ReportGenerator/ Generator#	Υ
Domestic Credit To Private Sector (% Of GDP)	The World Bank	https://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS? most_recent_value_desc=false	Υ
Percentage Of Firms Using Banks To Finance Investment	The World Bank	http://databank.worldbank.org/data/reports.aspx? source=world-development- indicators&series=IC.FRM.BNKS.ZS	N
Total Net Assets Of Regulated Open- End Funds	Investment Company Institute	http://www.icifactbook.org/	Y
Islamic Finance Country Index	Islamic Banks and Financial Institutions	http://www.gifr.net/publications	N
Net External Positions Of Banks	The Bank for International Settlements	http://www.bis.org/statistics/annex map.htm	Y
External Positions Of Central Banks As A Share Of GDP	The Bank for International Settlements	http://www.bis.org/statistics/annex_map.htm	Υ
Liner Shipping Connectivity Index	The World Bank	http://databank.worldbank.org/data/reports.aspx? source=2&series=IS.SHP.GCNW.XQ	Y
Global Connectedness Index	DHL	https://www.dhl.com/global-en/spotlight/globalization/global-connectedness-index.html	Y
Economic Performance Index	The Brookings Institution	https://www.brookings.edu/research/global-metro-monitor- 2018/#rank	N
Sustainable Stock Exchanges (Y/N)	UN Sustainable Stock Exchange Initiative	https://sseinitiative.org/members/	Y
Green Bond Segments On Stock Exchanges (Y/N)	СВІ	https://www.climatebonds.net/green-bond-segments-stock- exchanges	N
The Global Green Finance Index	Z/Yen	https://www.longfinance.net/programmes/financial-centre-futures/global-green-finance-index/	Y
The Global Financial Centres Index	Z/Yen	https://www.longfinance.net/programmes/financial-centre-futures/global-financial-centres-index/	Y
Sovereign Green Bond (Y/N)	Climate Bonds initiative	https://www.climatebonds.net/2021/11/cop26-briefing- sovereign-green-bond-issuance-takes-start-long-boom	N

Table 30 | Human Capital Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
Graduates In Social Science, Business And Law (As % Of Total Graduates)	The World Bank	http://databank.worldbank.org/data/reports.aspx? source=Education%20Statistics&series=UIS.FOSGP.5T8.F400	N
Gross Tertiary Graduation Ratio	The World Bank	http://databank.worldbank.org/data/reports.aspx? source=Education%20Statistics&series=SE.TER.CMPL.ZS	N
Henley Passport Index	Henley Partners	https://www.henleypassportindex.com/passport	N
Human Development Index	UN Development Programme	https://hdr.undp.org/content/human-development-report-2021- 22	N
Purchasing Power Index	Numbeo	https://www.numbeo.com/quality-of-life/rankings.jsp? title=2023&displayColumn=1	Υ
Number Of High Net Worth Individuals	Capgemini	https://www.worldwealthreport.com/	N
Homicide Rates	UN Office of Drugs & Crime	https://dataunodc.un.org/content/data/homicide/homicide-rate	Υ
Average Precipitation In Depth (mm Per Year)	The World Bank	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators&series=AG.LND.PRCP.MM	N
Global Skills Index	Coursera	https://www.coursera.org/skills-reports/global	New
Linguistic Diversity	Ethnologue	https://www.ethnologue.com/guides/countries-most-languages	N
Global Terrorism Index	Institute for Economics & Peace	https://www.visionofhumanity.org/wp-content/uploads/2022/03/ GTI-2022-web-09062022.pdf	N
World Talent Rankings	IMD	https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/	N
Adjusted Net National Income Per Capita	The World Bank	https://data.worldbank.org/indicator/NY.ADJ.NNTY.PC.CD	Υ
Household Net Financial Wealth	OECD	https://stats.oecd.org/index.aspx?DataSetCode=BLI	N
Educational Attainment, At Least Bachelor's Or Equivalent, Population 25+, Total (%)	The World Bank	https://data.worldbank.org/indicator/SE.TER.CUAT.BA.ZS	N
Life Expectancy At Birth, Total	The World Bank	https://data.worldbank.org/indicator/SP.DYN.LEOO.IN	N
Employees Working Very Long Hours	OECD	https://stats.oecd.org/Index.aspx?DataSetCode=BLI	N
Human Freedom Index	Cato Institute	https://www.cato.org/human-freedom-index	Y
Global Health Security Index	Nuclear Threat Initiative, Johns Hopkins Center for Health Security, and Economist Impact	https://www.ghsindex.org/	N
English Proficiency	Education First	https://www.ef.com/wwen/epi/	N

Table 31 | Business Environment Factors

Instrumental Factor	Source	Website	Updated Since SCI Y/N
Business Environment Rankings	EIU	http://country.eiu.com/All	Y
Operational Risk Rating	EIU	http://www.eiu.com/site_info.asp? info_name=VW2_RISK_nib&page=rk&page_title=Risk%20table	N
Real Interest Rate	The World Bank	https://databank.worldbank.org/reports.aspx?source=world-	N
Global Services Location	AT Kearney	https://www.kearney.com/digital/article/?/a/the-2021-kearney-	N
Corruption Perception Index	Transparency International	https://www.transparency.org/en/cpi/2022	Υ
Corporate Tax Rates	KPMG	https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html	N
Personal Tax Rates	OECD	https://stats.oecd.org/index.aspx?DataSetCode=TABLE 16	Υ
Tax Revenue As Percentage Of GDP	The World Bank	https://databank.worldbank.org/reports.aspx? source=2&series=GC.TAX.TOTL.GD.ZS&country=#	N
Bilateral Tax Information Exchange Agreements	OECD	http://www.oecd.org/ctp/exchange-of-tax-information/ taxinformationexchangeagreementstieas.htm	N
Economic Freedom Of The World	Fraser Institute	https://www.fraserinstitute.org/economic-freedom/map? geozone=world&page=map&year=2019	N
Government Debt As % Of GDP	IMF	https://www.imf.org/external/datamapper/	N
DECD Country Risk Classification	OECD	http://www.oecd.org/trade/topics/export-credits/documents/	Υ
Global Peace Index	Institute for Economics & Peace	https://www.visionofhumanity.org/maps/#/	Υ
Financial Secrecy Index	Tax Justice Network	http://www.financialsecrecyindex.com/	N
Government Effectiveness	The World Bank	http://info.worldbank.org/governance/wgi/	N
Open Government	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	N
Regulatory Enforcement	World Justice Project	http://worldjusticeproject.org/rule-of-law-index	N
Press Freedom Index	Reporters Without Borders (RSF)	https://rsf.org/en/index?year=2023	Y
Currencies	Swiss Association for Standardization (SNV)	https://www.six-group.com/en/products-services/financial- information/data-standards.html#scrollTo=current-historical-lists	N
Commonwealth Countries	The Commonwealth	http://thecommonwealth.org/member-countries	N
Common Law Countries	CIA	https://www.cia.gov/the-world-factbook/countries/	N
nflation, GDP Deflator	The World Bank	https://data.worldbank.org/indicator/NY.GDP.DEFL.KD.ZG	Υ
Rule Of Law	The World Bank	http://info.worldbank.org/governance/wgi/	N
Political Stability And Absence Of Violence/Terrorism	The World Bank	http://info.worldbank.org/governance/wgi/	N
Regulatory Quality	The World Bank	http://info.worldbank.org/governance/wgi/	N
Control Of Corruption	The World Bank	http://info.worldbank.org/governance/wgi/	N
Best Countries For Business	Forbes	https://www.forbes.com/best-countries-for-business/list/	N

Table 31 | (Continued) Business Environment Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
Open Budget Survey	International Budget Partnership	http://survey.internationalbudget.org/#download	N
Refined Oil Products Production	Enerdata Statistical Yearbook	https://yearbook.enerdata.net/download/	Y
Global Business Complexity Index	TMF Group	https://www.tmf-group.com/en/news-insights/ publications/2023/global-business-complexity-index/	Y

Table 32 | Reputational Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
World Competitiveness Scoreboard	IMD	https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-competitiveness-ranking/2023/	Υ
Global Competitiveness Index	World Economic Forum	http://reports.weforum.org/global-competitiveness-report- 2019/competitiveness-rankings/	N
Foreign Direct Investment Inflows	UNCTAD	http://unctadstat.unctad.org/wds/TableViewer/ tableView.aspx?ReportId=96740	N
GDP Per Person Employed (Constant 2017 PPP \$)	The World Bank	https://databank.worldbank.org/reports.aspx?source=world-development-indicators&series=SL.GDP.PCAP.EM.KD	N
Global Innovation Index	WIPO	http://www.globalinnovationindex.org/content.aspx?page=GII- Home	N
International IP Index	US Chamber of Commerce	https://www.uschamber.com/intellectual-property/2023- international-ip-index	Y
RPI (% Change On Year Ago)	The Economist	https://www.economist.com/economic-and-financial-indicators/2023/06/22/economic-data-commodities-and-markets	Υ
Number Of International Association Meetings	World Economic Forum	http://reports.weforum.org/travel-and-tourism- competitiveness-report-2019/rankings/#series=NRFAIREX	N
Innovation Cities Global Index	2ThinkNow Innovation Cities	https://innovation-cities.com/world-city-rankings/	Υ
Big Mac Index	The Economist	https://www.economist.com/big-mac-index	Υ
Sustainable Economic Development	Boston Consulting Group	https://www.bcg.com/en-gb/publications/2021/prioritizing- societal-well-being-seda-report	N
Level Of Internet Freedom	Freedom House	https://freedomhouse.org/countries/freedom-net/scores	N
Good Country Index	Good Country Party	https://www.goodcountry.org/index/results	N
Legatum Prosperity Index	Legatum Institute	http://www.prosperity.com/#!/ranking	N
FDI Inward Stock (In Million Dollars)	UNCTAD	https://unctad.org/publication/world-investment-report-2023	N
Quality Of Nationality Index	Henley Partners	https://nationalityindex.com/#	N
Global Power City Index	The Mori Memorial Foundation	http://mori-m-foundation.or.jp/english/ius2/gpci2/index.shtml	N
Economic Freedom	The Heritage Foundation	https://www.heritage.org/index/ranking	Υ
Safe Cities Index	Economist	https://safecities.economist.com/	N
The Global Green Economy Index	Dual Citizen	https://dualcitizeninc.com/global-green-economy-index/	N
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Table 33 | Infrastructure Factors

Instrumental Factor	Source	Website	Updated Since SCI 7 Y/N
Agility Emerging Markets Logistics Index	Agility	https://www.agility.com/en/emerging-markets-logistics-index/rankings/	Υ
JLL Real Estate Transparency Index	Jones Lang LaSalle	https://www.jll.co.uk/en/trends-and-insights/research/global-real-estate-transparency-index	N
Quality Of Domestic Transport Network	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/rankings/#series=TRSPEFFICY	N
Quality Of Roads	World Economic Forum	http://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/rankings/#series=EOSQ057	N
Roadways Per Land Area	CIA	https://www.cia.gov/the-world-factbook/field/roadways/country-comparison	N
Railways Per Land Area	CIA	https://www.cia.gov/the-world-factbook/field/railways/country- comparison	
Protected Land Area % Of Land Area	The World Bank	http://databank.worldbank.org/data/reports.aspx? source=2&series=ER.LND.PTLD.ZS&country=	Υ
Energy Sustainability Index	World Energy Council	https://trilemma.worldenergy.org/	N
Environmental Performance Index	Yale University	https://epi.yale.edu/epi-results/2020/component/epi	N
Global Sustainable Competitiveness Index	Solability	http://solability.com/the-global-sustainable-competitiveness-index/the-index	N
Logistics Performance Index	The World Bank	http://lpi.worldbank.org/international/global	Υ
Proportion Of Population Using Safely- Managed Drinking-Water Services (%)	WHO	https://www.who.int/data/gho/publications/world-health- statistics	N
INRIX Traffic Scorecard	INRIX	http://inrix.com/scorecard/	N
Forestry Area	World Bank	http://databank.worldbank.org/data/reports.aspx? source=2&series=AG.LND.FRST.ZS&country=	N
CO2 Emissions Per Capita	World Bank	https://databank.worldbank.org/reports.aspx? source=2&series=EN.ATM.CO2E.PC&country=#	N
4G Availability	Open Signal	https://www.opensignal.com/reports/2020/05/global-state-of-the-mobile-network	N
Share Of Wind And Solar In Electricity Production	Enerdata Statistical Yearbook	https://yearbook.enerdata.net/download/	Υ
Energy Intensity Of GDP	Enerdata Statistical Yearbook	https://yearbook.enerdata.net/download/	Υ
Share Of Renewables In Electricity Production	Enerdata Statistical Yearbook	https://yearbook.enerdata.net/download/	Υ
Energy Transition Index	World Economic Forum	https://www.weforum.org/reports/1edb4488-deb4-4151-9d4f- ff355eec499a/in-full/rankings	N
Urban Mobility Readiness Index	Oliver Wyman	https://www.oliverwymanforum.com/mobility/urban-mobility-readiness-index/rankings.html	N
The Green Future Index	MIT Technology Review	https://www.technologyreview.com/2023/04/05/1070581/the-green-future-index-2023/	Υ
The Green Future Index www.longfinance.net	·		

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Among others, FSDC focuses on topics including Mainland and international connectivity, green and sustainable finance, FinTech, as well as asset and wealth management.

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- ensure the soundness and stability of the financial system in Mauritius

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We work on researching innovative ways of building a more sustainable financial system. In so doing, we try to operate openly and emulate scientific ideals. At the same time, we are looking to create a supportive and caring community where people can truly question the accepted paradigms of risk and reward.

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