

Basel, Bern, Geneva, Zurich

Swiss special edition of the PwC study
“Cities of Opportunity”



Urbanisation is a megatrend of our time. Economics, Quality of life and Tools for a changing world are the cornerstones of a sophisticated city.

To be attractive as a city, it is worth investing in new technologies – especially in Switzerland.

Swiss cities are agile and well prepared for change. The main driver: highly qualified professionals.

In the future, it will be crucial to attract young talents and engage seniors more actively in the labour process.

Fewer administrative obstacles boost economic dynamism. The trend is towards decentralised public services.

Index

<i>Preface</i>	5
<i>The expert view from Andreas Rickenbacher</i>	6
<i>From an economics perspective (IMP-HSG)</i>	7
<i>Key facts at a glance</i>	8
<i>Four Swiss cities in an international comparison</i>	12
Four cities, one nation	13
Switzerland at world-class level	14
A glance at Europe	16
What urban regions want	17
<i>Tools for a changing world</i>	18
Intellectual capital and innovation	18
Technology readiness	20
City gateway	22
<i>Quality of life</i>	24
Health, safety and security	24
Sustainability and natural environment	26
Demographics and livability	28
Transportation and infrastructure	30
<i>Economics</i>	32
Economic clout	32
Ease of doing business	34
Cost	36
<i>Focus on: Basel</i>	38
<i>Focus on: Bern</i>	40
<i>Focus on: Geneva</i>	42
<i>Focus on: Zurich</i>	44
<i>About the study</i>	46
<i>Appendix</i>	47
<i>Get in touch with us</i>	51



Preface

Dear readers,

Cities are the energy fields of a country. This is where people, knowledge and ideas come together. Here we work and live, develop and produce, offer and demand. The success of a city is based on a holistic balance of quality of life, economics and the ability to keep up with change – and on the far-sightedness of those people who are in control of these factors.

With this study we would like to show what is required of Switzerland to achieve a successful urban development and management, what factors account for the growth of a city, in which disciplines Switzerland belongs to the world elite and where it can improve. To this end, we have subjected Basel, Bern, Geneva and Zurich to the same criteria that have been applied to 30 world cities in the PwC study “Cities of Opportunity” since 2007. This Swiss special edition thus provides an inventory as well as an objective benchmark for international comparison. After all, a future-proof and globally competitive development of the Swiss cities and agglomerations secures the future of the entire country.

Why compare Switzerland to giants when its smallness is what makes it unique? Because Switzerland's economy, society and politics perform at a world-class level. Consider, for example, the numerous Swiss top-performers: highly specialised niche suppliers serving lucrative sectors around the globe in the shadow of large corporations. Or the renowned knowledge institutions such as the University of St. Gallen or the Swiss Federal Institutes of Technology, which generate highly talented scientists and a number of Nobel Prize winners. Or the political actors, who provide their knowledge and negotiating skills to the international community.

Looking at the study results, we see that Switzerland as a whole as well as its cities and regions are first-class in many respects. They not only achieve a top position in research and business, but also offer a high quality of life at a fair price. The Zurich region, for example, is at the forefront of Innovation. Basel, thanks to its location at the border triangle, ranks second in the Transportation and infrastructure indicator. Bern emerges from the race as the world leader in *Health, safety and security*. And finally, Geneva convinces with its top scores in Sustainability.

On behalf of PwC, I would like to thank everyone who contributed to this study. Special thanks go to Andreas Rickenbacher, former Cantonal Councillor and Director of Economic Affairs of the Canton of Bern, who shared his vast experience with us. I would also like to thank Ali Asker Guenduez and Prof. Kuno Schedler from the University of St. Gallen, who contributed their perspective as economists. My thanks also go to Anna-Corinna Kulle, Felicitas Gartmann and Maximilian Kress, students of the University of St. Gallen, whose basic work made this study possible.

I wish you enjoy reading this study and are inspired for the future.



Moritz Oberli
Partner PwC Switzerland
Public Industry Leader



Andreas Rickenbacher

Andreas Rickenbacher Management AG,
former Cantonal Councillor of the Canton of Bern

The expert view from Andreas Rickenbacher

As a former Cantonal Councillor and Director of Economic Affairs of the Canton of Bern and chairman of the Swiss Conference of Economic Directors, I was joined by partners from politics, administration and business to provide an optimal environment for Switzerland to compete internationally. Competition among states consists of various aspects. It is not enough to merely focus on production factors, as it is a high standard of living that makes a country attractive for talent, investors and research and forms the basis for high productivity.

Switzerland and its cities are leading in many respects. Despite a long period of a strong Swiss franc, we managed to maintain jobs in the industry. Even in the financial crisis, Switzerland has proven that it can overcome major problems. However, we must not rest on our laurels; international competition from, for example, Asia and the U.S. coasts, has become fierce.

In a connected world in which value chains and product life cycles are continually becoming shorter, we must take a step forward in areas such as business and technology. This is the only way to maintain our high standard of living in the future. In times of globalisation, it is especially difficult as a small country to protect our interests. This makes it all the more necessary to approach the challenges in a unified and coordinated manner. We must increasingly see Switzerland as a whole – as a location for services, technology and research, from Geneva to Romanshorn. A common spatial planning policy, a coordinated research policy and the joint marketing of our advantages will become crucial. This, of course, without giving up healthy competition between the locations within Switzerland.



Dr. Ali Asker Guenduez and Prof. Dr. Kuno Schedler

Smart Government Lab, Institute for Systemic Management and
Public Governance, University of St. Gallen



From an economics perspective (IMP-HSG)

The importance of cities is constantly increasing. Today, more than half of the world's population lives in cities – this is where political, social, economic and cultural life takes place. They are continually evolving into centres of innovation and research as well as economic prosperity. According to international standards, a city includes all areas that can be reached within 90 minutes commuting time. From this perspective, Swiss cities play a minor role in terms of their size when comparing them to cities worldwide. However, if we consider attributes such as security, prosperity, education, etc., it becomes certainly interesting to make a comparison.

A highly complex structure like a city is difficult to measure and capture in an evaluation grid. The analysis requires a high level of abstraction, often at the expense of individual strengths and weaknesses of the respective city. The purpose of rankings and the choice of indicators is always subject to discussion. The “Cities of Opportunity” concept conveys a plausible feeling for cities that are well positioned for the future, while accomplishing two things: On the one hand, it is based on a catalogue of reference figures which, from PwC's point of view, constitute the future viability of a city.

For example, indicators such as intellectual capital, mental innovation, technology readiness and the physical accessibility of the city are seen as evidence of a changing world. On the other hand, the study tries to measure to what extent a city corresponds to this reference model.

The data on the Swiss cities were collected by students of the University of St. Gallen (HSG). We would like to thank all those involved for their great and careful work.

Such rankings stimulate public discourse on critical developments such as air quality, demographic change or crime. A broad response motivates political and economic decision-makers to work increasingly on innovative and sustainable solutions.

In conclusion, only one thing is still missing: an effective reaction of urban policy to tackle possible deficits in a focused manner – so that our cities in Switzerland are equipped to face challenges also in the future.

Key facts at a glance

The Swiss cities and regions are doing a good job. They are at the forefront in numerous indicators, while lagging behind in others – also, but not only because of their small size. In the following, we have summarised and refined the most important findings of this study.



Tools for a changing world

The Swiss cities are agile and well prepared for change. A major prerequisite for this is the ability to recruit and retain highly qualified professionals, which is what drives our *Innovation*. Therefore, the cities that stand out in the *Intellectual capital and innovation indicator* are those with renowned knowledge institutions: Zurich ranks second, Geneva ninth and Basel eleventh. Regarding *Technology readiness*, the Swiss cities only show average results. Especially in the field of *Software development* and *Digital security*, there is considerable room for improvement. When it comes to *City gateway*, the Swiss cities again sit in the middle part of the ranking. However, this indicator is distorted due to the narrowly defined and strongly quantity-dependent variables and by the exclusion of foreign rail and private transport commuters. As 48 percent of the resident population are foreigners, Geneva would certainly be unrivalled in first place in this indicator.

Our opinion: If they are to play at world-class level in the long term, Basel, Bern, Geneva and Zurich need to increase their flexibility in dealing with new technologies. Digital security plays a key role here. After all, incomplete cybersecurity can have a lasting negative impact on quality of life. A clear commitment to technologies increases the attractiveness of a world city and contributes to its social and economic prosperity.

Quality of life

Globally, the Swiss cities stand for a high, yet affordable quality of life. They show very good results in all variables within this key indicator. Little Bern shows an outstanding performance on *Health, safety and security*, while Zurich, Geneva and Basel score a second place together with Tokyo. In the *Sustainability and natural environment indicator*, the Swiss cities rank among the top six. In terms of *Demographics and livability* however, only Geneva ranks among the top ten. When it comes to the average age of the working population, the Swiss cities are even at the bottom of the ranking. These demographic variables make it clear that the Swiss cities cannot withstand a quantity comparison with the large global cities. More positive results are achieved in the *Transportation and infrastructure indicator*: Basel wins the silver medal and Zurich ranks among the top five. This shows that the Swiss cities are committed to strong public transport that is affordable even internationally.

Our opinion: Sustainable political stability, comparatively low crime rates, safe roads, a balanced health system – these are the factors that have always made Switzerland extremely attractive for economy, tourism and the resident population. The relatively high average age of the working population will present the Swiss cities with the challenge of attracting sufficient professionals in the medium term. Furthermore, they must not lose sight of the issue of air pollution and foster their green spaces and public parks

Economics

The Swiss cities demonstrate a distinct *Economic clout*. In terms of *Number of Global 500 headquarters*, Zurich ranks at eighth and Basel at 19th place, resulting in a high level of economic activity. This in turn boosts growth and creates jobs both in the respective sector and in the associated industries. In Geneva, the numerous international organisations that have a strong magnet effect on other non-profit and non-governmental organisations come into play. Bern, because of its central location and capital function, is an interesting location for foreign enterprises. In terms of *Ease of doing business*, all of the Swiss cities have room for improvement. The best-ranked Swiss city in this indicator is Geneva, scoring a 16th place. The main reason for these average results is the slow administrative processes. In terms of *Cost*, the Swiss cities are quite competitive, as they all rank among the top ten, with the first three medals in Europe going to Basel, Bern and Zurich.

Our opinion: Without administrative obstacles, the Swiss cities would be even more appealing in comparison with other locations. Zurich and Basel should therefore create an even more attractive environment for international companies. All of the Swiss cities should eliminate restraining factors in their economic conditions. By removing administrative hurdles, they could boost additional economic dynamism. We consider the cost advantage to be an excellent starting point for the Swiss cities to further expand their strengths.





Solid prosperity and a high quality of life should be maintained in the future.

Four Swiss cities in an international comparison



Figure 1: Basel, Bern, Geneva and Zurich are among the most promising world cities.

In this special edition of the PwC study “Cities of Opportunity” (see box) we examine a total of 34 cities worldwide, adding Basel, Bern, Geneva and Zurich to the 30 cities of the 2017 edition. These 34 global cities embody the energy, opportunities and hopes that inspire new people for city life and make urbanisation one of the strongest megatrends of our time.

Like all major cities, Basel, Bern, Geneva and Zurich are influenced by global trends and must adapt to changing circumstances, such as global migration or the decentralisation of public services. Although Switzerland is relatively small, there are major differences between the four cities. Besides other numerous differences, one important distinguishing factor is the language: Geneva is French-speaking, while the language spoken in Basel, Bern and Zurich is German.

All four cities and their regions want to continue to play an important cultural and economic role in the future, both nationally and internationally. They also want to maintain solid prosperity and a high quality of life. To achieve these goals, the cities must understand their strengths, which are opportunities, and their potential for improvement, which entails taking risks. The initial assessment of Basel, Bern, Geneva and Zurich enables us to compare their performance with that of selected world cities using holistic indicators and variables and provide soundly based information on their global competitiveness. Details on the study design are summarised on page 46.

Four cities, one nation

The Swiss-German city of **Basel** shares the border with France and Germany, which places it in an international position. Key companies in the financial and logistics sectors as well as in the pharmaceutical industry including Roche, Novartis, Syngenta und Actelion shape the city economically and in terms of urban development, for example with the Roche tower or the Novartis Campus.

In return, the Swiss capital of **Bern** bears the signature of the administration. Numerous federal offices and companies affiliated with the Confederation (SBB, Swisscom, Post, Ruag) are located here. In addition, Bern is smaller than the other three Swiss cities and the surrounding countryside is much more rural. Furthermore, the old town of Bern is protected as a UNESCO World Heritage Site. Its proximity to the language border gives the city a bridging function between German-speaking and French-speaking Switzerland.

Geneva, the city of Calvin, is located directly on the border to France and is therefore relatively far from the centre of Switzerland. The city has always been internationally oriented, economically as well as culturally. The numerous international organisations – above all the UN with many sub-organisations and the headquarters of the ICRC – have a lasting impact on the city and region.

Zurich has almost twice as many inhabitants as second-placed Geneva and is by far the most important city in Switzerland in economic and cultural terms. The city offers over 300,000 jobs that attract commuters from all over German-speaking Switzerland, thus shaping the urban landscape with Switzerland's largest railway station and numerous impressive commercial properties and buildings. The main players in Zurich's financial centre (UBS, Credit Suisse, Zurich Insurance and others) are world leaders in their sector. The economic importance, the reputation of the knowledge institutions (above all ETH Zurich) and the excellent international connections to Zurich-Kloten airport have made Zurich a cosmopolitan city for many years.



How the cities rank

London
Singapur
Toronto
Paris
Zurich
Stockholm
New York
Amsterdam
San Francisco
Hong Kong

Sydney
Seoul
Basel
Chicago
Berlin
Los Angeles
Geneva
Tokio
Madrid
Bern
Dubai

Milan
Beijing
Kuala Lumpur
Shanghai
Moscow
Mexico City
Johannesburg
Bogotá
São Paulo
Rio de Janeiro
Jakarta
Mumbai
Lagos

High
Medium
Low

Switzerland at world-class level

Compared to the global financial, economic and cultural centres, the Swiss cities achieve a good result. Zurich occupies an excellent fifth place, only seven points behind fourth-placed Paris. Although the relatively small city of Bern is ranked last among the Swiss cities, it is still in the top 20, and makes a particularly positive impression because it is the only Swiss city at the top in terms of *Health, safety and security*.

What each of the 34 cities of this study have in common is their attractiveness to businesses, visitors and residents alike. What characterises the power to draw each of these groups to the city is the holistic balance across the key indicators which constitute the success factors for a city, which are:

- Intellectual capital and innovation
- Technology readiness
- City gateway
- Health, safety and security
- Sustainability & natural environment
- Demographics and livability
- Transportation and infrastructure
- Economic clout
- Ease of doing business
- Cost

These ten indicators represent a set of 59 variables which are used to provide a picture of how the cities perform across three overarching themes: *Economics, Quality of life* and what we call *Tools for a changing world*.

Rank	Cities	Intellectual capital and innovation
1	London	197
2	Singapur	152
3	Toronto	181
4	Paris	181
5	Zurich	189
6	Stockholm	163
7	New York	173
8	Amsterdam	176
9	San Francisco	187
10	Hong Kong	143
11	Sydney	159
12	Seoul	150
13	Basel	163
14	Chicago	161
15	Berlin	140
16	Los Angeles	164
17	Geneva	164
18	Tokio	161
19	Madrid	84
20	Bern	147
21	Dubai	100
22	Milan	94
23	Beijing	123
24	Kuala Lumpur	67
25	Shanghai	103
26	Moscow	104
27	Mexico City	71
28	Johannesburg	51
29	Bogotá	68
30	São Paulo	45
31	Rio de Janeiro	42
32	Jakarta	41
33	Mumbai	45
34	Lagos	26

On the following pages these themes will be used to further assess the competitive position of the Swiss cities on an international scale. The comparison with the global PwC study “Cities of Opportunity” not only provides an insight into the main strengths of the Swiss cities, but also highlights the areas in which they can improve their performance and learn from their peers.

Technology readiness	Transportation and infrastructure	Health, safety and security	Sustainability and natural environment	Economic clout	Ease of doing business	Cost	Demographics and livability	City gateway	Score
158	141	144	125	171	222	71	182	212	1623
186	193	144	99	122	241	108	120	171	1536
140	138	158	158	116	206	136	168	122	1523
130	145	134	156	125	183	70	184	194	1502
132	162	164	172	124	148	139	147	118	1495
153	168	149	184	117	193	89	148	107	1471
150	141	118	118	165	178	73	185	166	1467
154	127	138	151	118	156	97	167	171	1455
131	152	129	148	146	161	89	176	115	1434
135	132	130	105	113	237	107	144	183	1429
120	140	150	184	132	158	95	135	118	1391
127	135	121	161	101	176	106	130	162	1369
136	179	164	180	86	141	148	127	36	1360
118	155	119	131	96	165	122	149	134	1350
85	154	145	155	82	162	134	159	132	1348
131	115	121	117	99	177	132	178	114	1348
126	126	164	164	83	156	128	151	84	1346
135	118	164	114	103	146	75	129	179	1324
89	137	131	143	136	146	119	133	166	1284
129	131	167	174	60	153	145	136	24	1266
102	168	101	55	112	118	132	117	186	1191
79	124	116	140	107	130	83	87	106	1066
104	97	55	96	154	93	55	96	189	1062
72	119	42	68	113	171	129	74	152	1007
94	94	65	95	124	71	66	97	176	985
95	100	46	128	84	102	74	105	139	977
51	104	78	96	95	124	96	125	85	925
45	82	62	106	90	127	155	69	100	887
74	84	39	90	68	113	117	73	46	772
64	85	43	98	63	84	109	80	86	757
39	104	43	111	53	81	88	102	71	734
49	66	43	52	92	64	113	51	80	651
64	71	40	62	94	65	92	55	58	646
15	12	11	64	77	28	91	9	27	360

Figure 2: Swiss cities are doing well in an international comparison.

Three overarching city themes: Economics, Quality of life and Tools for a changing world.

Zurich occupies an excellent fifth place, only seven points behind fourth-placed Paris.

A glance at Europe

In a purely European perspective, Zurich ranks third, just behind the historic power centres of London and Paris. Basel follows Stockholm and Amsterdam in sixth place. Geneva ranks eighth with only two points behind Berlin. With tenth place, even little Bern is still well ahead of Milan and Moscow.

It is particularly striking that Basel is Europe's leader in the *Transportation and infrastructure* indicator as well as in terms of *Cost*, as is Bern regarding *Health, safety and security*. The top positions in the other indicators are held five times by London and once each by Paris and Stockholm.

These results underline an insight from earlier issues of the PwC study "Cities of Opportunity": The more well-balanced a city is socially, economically and environmentally, the better it will fare for businesses, residents and visitors.

Rank	Cities	Intellectual capital and innovation
1	London	197
2	Paris	181
3	Zurich	189
4	Stockholm	163
5	Amsterdam	176
6	Basel	163
7	Berlin	140
8	Geneva	164
9	Madrid	84
10	Bern	147
11	Milan	94
12	Moscow	104

The more well-balanced a city is socially, economically and environmentally, the better it will fare for businesses, residents and visitors.

"Cities of Opportunity" – a global study by PwC

The first edition of the global "Cities of Opportunity" study was developed in 2007 by PwC in collaboration with the "Partnership for New York City". The question which gave birth to this study was what New York had to do to remain competitive on the world stage. The purpose of this study continues to be to comparatively measure the performance of a range of global cities against a set of ten indicators, which jointly provide a holistic view on how successful cities thrive in sustainable urban development.

Like the examined world cities, the research itself has continued to evolve over the last ten years. Over time, the analysis has grown to 30 cities covered today. The objects of study must meet three requirements: they are capital market centres, have vibrant economies and offer a high quality of life. Each year this set of cities is re-assessed with upcoming cities joining the ranks while those falling back in their development are taken off the list.

More on the study design on page 46.

Technology readiness	Transportation and infrastructure	Health, safety and security	Sustainability and natural environment	Economic clout	Ease of doing business	Cost	Demographics and livability	City gateway	Score
158	141	144	125	171	222	71	182	212	1623
130	145	134	156	125	183	70	184	194	1502
132	162	164	172	124	148	139	147	118	1495
153	168	149	184	117	193	89	148	107	1471
154	127	138	151	118	156	97	167	171	1455
136	179	164	180	86	141	148	127	36	1360
85	154	145	155	82	162	134	159	132	1348
126	126	164	164	83	156	128	151	84	1346
89	137	131	143	136	146	119	133	166	1284
129	131	167	174	60	153	145	136	24	1266
79	124	116	140	107	130	83	87	106	1066
95	100	46	128	84	102	74	105	139	977

Figure 3: The European comparison underlines that the Swiss cities are well-balanced socially, economically and environmentally.

What urban regions want

Based on the city's vision, it is important for a city to know where it wants to go, understanding the current position and managing the city from a holistic point of view to seek balance between social, environmental and economic indicators. Besides these key success factors, recent urban studies conducted by PwC show that in addition to these success factors, an agile city organisation is also needed, supported by partnerships and in collaboration with its key stakeholders.

That is why it is particularly important for cities in Switzerland's federalist system to cooperate within their regions. Furthermore, a flexible organisation of the city administration is indispensable for the growth and development of a city.

It is particularly important for cities in Switzerland's federalist system to cooperate within their regions.



Tools for a changing world

*Cities are part of an ever-changing world. Their success therefore depends on the ability to meet the changing needs of society. In this chapter, we assess a city's future readiness on the basis of the indicators **Intellectual capital and innovation**, **Technology readiness** and **City gateway**.*

Attracting and fostering talent and intellectual capital is among the key success factors of cities and regions.

Intellectual capital and innovation

Today's economy is knowledge-based. Attracting and fostering talent and intellectual capital is therefore among the key success factors of cities and regions. It's this ability that enables innovations that are vital for economic, social and ecological growth.

Long-standing institutional networks, in which cities and regions dominate both locally and globally, have an almost unrivalled impact on *Intellectual capital*. Zurich, and in part also Geneva and Basel, have well-established networks of knowledge institutions that attract and foster highly qualified professionals. This in turn creates the space for a city's *Innovative strength* and entrepreneurial spirit.

As the second largest city in the *Intellectual capital and innovation* indicator, Zurich demonstrates its core ability to position itself well for future competitiveness. Geneva in ninth and Basel in eleventh place are also in excellent shape in this key discipline. This ranking does not take into account the influence of cooperation between different institutions within a city.

Rank	Intellectual capital and innovation	Libraries with public access	Math/Science skills attainment	Percent of population with higher education	World university rankings	Innovation Cities Index	Intellectual property protection	Entrepreneurial environment	Score
1	London	31	20	30	34	32	28	22	197
2	Zurich	33	28	33	20	15	33	27	189
3	San Francisco	25	16	34	25	34	20	33	187
4	Paris	32	19	24	31	31	24	20	181
5	Toronto	23	23	27	24	29	25	30	181
6	Amsterdam	24	24	32	17	30	26	23	176
7	New York	21	16	25	26	33	20	32	173
8	Los Angeles	17	16	19	32	26	20	34	164
9	Geneva	27	28	23	13	13	33	27	164
10	Stockholm	28	11	28	23	24	21	28	163
11	Basel	34	28	20	14	7	33	27	163
12	Chicago	19	16	26	28	21	20	31	161
13	Tokio	22	30	15	27	25	29	13	161
14	Sydney	20	21	14	29	23	23	29	159
15	Singapur	7	33	18	19	20	34	21	152
16	Seoul	12	31	22	33	28	9	15	150
17	Bern	26	28	16	12	5	33	27	147
18	Hong Kong	11	32	7	30	22	27	14	143
19	Berlin	18	22	17	21	27	16	19	140
20	Beijing	3	29	29	22	17	12	11	123
21	Moscow	29	12	31	11	14	2	5	104
22	Shanghai	2	34	10	16	18	12	11	103
23	Dubai	5	10	21	6	19	22	17	100
24	Milan	14	17	12	18	16	8	9	94
25	Madrid	13	18	4	15	11	7	16	84
26	Mexico City	30	5	11	6	6	6	7	71
27	Bogotá	15	6	13	9	4	3	18	68
28	Kuala Lumpur	8	8	9	6	10	14	12	67
29	Johannesburg	16	1	1	8	2	15	8	51
30	Mumbai	1	9	3	7	12	10	3	45
31	São Paulo	10	4	6	10	9	5	1	45
32	Rio de Janeiro	9	4	8	6	8	5	2	42
33	Jakarta	6	2	5	6	3	13	6	41
34	Lagos	4	8	2	6	1	1	4	26

Figure 4: Solid institutional networks are among the key success factors.



Technology readiness

We consider *Technology readiness* a key enabler for future developments and innovations. The Swiss cities perform only moderately in this indicator, with none of them leading any of the variables. At least Basel and Zurich rank among the top ten. Bern and Geneva are also in the top half of the ranking.

The reason for the moderate performance of the Swiss cities is found in the variables *Software development and multimedia design* and *Digital security*. According to two fDi¹ studies, the Swiss cities are in the bottom ranks in *Software develop-*

ment and close the middle part in *Digital security*. Both variables are crucial for stakeholders who want to be at the forefront of Technology and other ground breaking indicators in the future. For example, serious security deficiencies in the digital domain could seriously affect the *Quality of life* indicator in the long run. For this reason, the Swiss cities have to pay more attention to their digital security. We believe that this issue should be the main focus of decision-makers.

Politics and the economy have recognised the low ranking particularly in the domain of *Digital security*. Not only administrations, but also companies consider digital security to be more important today than it was a few years ago. This development points in the right direction and should help the Swiss cities to work their way up in this ranking in the future.

After all, technology-driven initiatives contribute to the attractiveness of a city and enable social and economic growth.



An assessment such as the global PwC study “Cities of Opportunity”, which focuses on urban regions, does not include ground breaking developments in the metropolitan region. However, Swiss cities additionally benefit from the sense of optimism called “Crypto Valley” currently prevailing in the Zug region. Thanks to their proximity, the collected knowledge can also be used in the large Swiss cities and thus contributes to urban innovation. Furthermore, new innovation parks such as those in Biel-Bienne or Würenlingen in the Canton of Aargau are not included in “Cities of Opportunity”. However, the short distances also ensure that the four Swiss cities can implement new ideas quickly.

As a matter of fact, it is necessary that Switzerland in general as well as Basel, Bern, Geneva and Zurich in particular improve their *Technology readiness*. Only by doing so, they will be in an optimal position to face global competition in the medium term. After all, technology-driven initiatives contribute to the attractiveness of a city and enable social and economic growth. Nowadays, technological innovations are progressing faster than any other trend. This means that with continuous developments, investments and innovations, the Swiss cities can advance from the middle part to the top very quickly.

Rank	Technology readiness	Internet access in schools	Broadband quality	Mobile broadband speed	ICT use	Software development and multimedia design	Digital security	Score
1	Singapur	33	33	34	31	22	33	186
2	London	32	19	18	34	32	23	158
3	Amsterdam	34	22	33	32	11	22	154
4	Stockholm	31	29	21	33	10	29	153
5	New York	23	27	17	25	26	32	150
6	Toronto	30	17	22	31	15	25	140
7	Basel	27	26	28	29	6	20	136
8	Hong Kong	19	34	16	22	13	31	135
9	Tokio	16	30	9	12	34	34	135
10	Zurich	27	25	28	29	3	20	132
11	San Francisco	23	20	15	24	21	28	131
12	Los Angeles	23	24	14	22	18	30	131
13	Paris	9	31	31	24	23	12	130
14	Bern	27	23	28	29	2	20	129
15	Seoul	29	32	11	19	33	3	127
16	Geneva	27	21	28	29	1	20	126
17	Sydney	28	10	32	17	9	24	120
18	Chicago	23	18	13	22	16	26	118
19	Beijing	15	13	29	6	31	10	104
20	Dubai	18	9	30	11	7	27	102
21	Moscow	13	28	12	13	25	4	95
22	Shanghai	15	14	24	5	27	9	94
23	Madrid	10	16	20	16	14	13	89
24	Berlin	12	12	19	19	12	11	85
25	Milan	6	11	23	15	8	16	79
26	Bogotá	8	2	10	10	29	15	74
27	Kuala Lumpur	17	6	4	15	24	6	72
28	Mumbai	7	4	1	1	30	21	64
29	São Paulo	4	15	7	10	20	8	64
30	Mexico City	5	7	5	3	17	14	51
31	Jakarta	11	3	3	2	28	2	49
32	Johannesburg	1	5	8	7	19	5	45
33	Rio de Janeiro	4	8	6	10	4	7	39
34	Lagos	2	1	2	4	5	1	15

Figure 5: In terms of Technology readiness, the Swiss cities have room for improvement.

City gateway

All of the Swiss cities end up at a rather low position in this ranking, for which there is a simple explanation: Four of the seven variables underlying this indicator are based on absolute values. It is obvious that global megacities have more hotel rooms, international meetings and air traffic.

If this indicator excludes the quantity-based rankings, Zurich advances to second place – just behind Amsterdam and on equal points with Beijing and Dubai. In the *Airport to CBD access* variable, Geneva is the leading city together with Dubai. In this variable, Zurich has already achieved a third place.

Rank	City gateway	Airport to CBD access	Top 100 airports	Airport connections	Score
1	Amsterdam	30	28	30	88
2	Beijing	31	27	27	83
3	Dubai	34	20	29	83
4	Zurich	32	30	21	83
5	London	19	29	34	82

Figure 6: In qualitative terms, Zurich is one of the most cosmopolitan cities in the world.

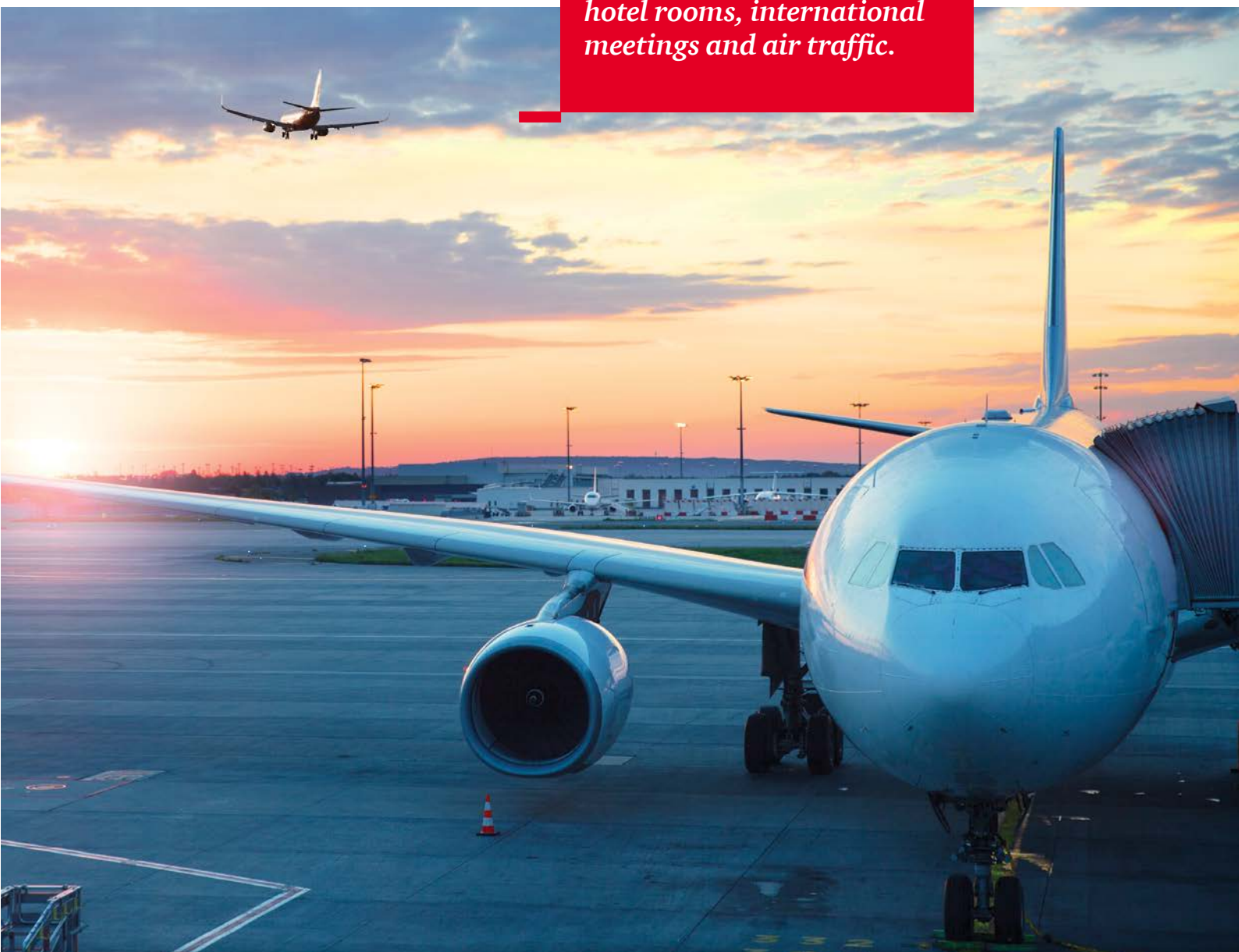
Rank	City gateway	Hotel rooms	International tourists	Number of international association meetings	Incoming/ outgoing passenger flows	Airport to CBD access	Top 100 airports	Airport connections	Score
1	London	32	33	31	34	19	29	34	212
2	Paris	28	31	33	31	21	18	32	194
3	Beijing	34	17	27	28	31	27	25	189
4	Dubai	31	30	17	25	34	20	29	186
5	Hong Kong	27	34	28	23	23	32	16	183
6	Tokio	29	24	25	32	14	31	24	179
7	Shanghai	26	26	21	29	26	22	26	176
8	Amsterdam	11	23	29	20	30	28	30	171
9	Singapur	24	32	30	19	14	34	18	171
10	New York	33	29	13	33	12	15	31	166
11	Madrid	25	16	34	17	28	23	23	166
12	Seoul	13	27	26	24	17	33	22	162
13	Kuala Lumpur	22	28	22	18	22	26	14	152
14	Moscow	20	21	9	27	12	17	33	139
15	Chicago	19	8	11	30	26	13	27	134
16	Berlin	23	19	32	11	10	9	28	132
17	Toronto	18	13	19	15	18	19	20	122
18	Sydney	10	12	23	14	27	25	7	118
19	Zurich	4	3	20	8	32	30	21	118
20	San Francisco	16	14	8	22	24	21	10	115
21	Los Angeles	30	22	5	26	6	10	15	114
22	Stockholm	9	15	24	7	21	14	17	107
23	Milan	12	25	15	10	16	9	19	106
24	Johannesburg	3	20	7	6	29	24	11	100
25	São Paulo	22	7	16	16	4	9	12	86
26	Mexico City	14	11	14	13	15	9	9	85
27	Geneva	6	5	10	5	34	11	13	84
28	Jakarta	15	10	6	21	8	16	4	80
29	Rio de Janeiro	17	9	18	9	6	9	3	71
30	Mumbai	8	18	2	12	3	9	6	58
31	Bogotá	7	4	12	4	2	12	5	46
32	Basel	2	2	3	2	10	9	8	36
33	Lagos	5	6	1	3	1	9	2	27
34	Bern	1	1	4	1	7	9	1	24

Figure 7: The low position of the Swiss cities in this ranking is due to their small numerical size.

Unfortunately, the *City gateway* indicator excludes the foreign population as well as international commuter flows that do not arrive through an airport. If this figure were included, Geneva, where 48 percent of the permanent resident population are foreigners, would certainly be far ahead of this ranking. Also, the border cities of Geneva and Basel would certainly show maximum scores² when it comes to the commuter flows of foreign employees who do not arrive through an airport. Further, Zurich is also relatively easy to reach from the border region of Germany. This means that the city on the Limmat River certainly has a higher proportion of foreign commuters than most other cities.

In contrast, international recognition does play an important role in global competition and is measured in absolute visitor numbers. This is something that Basel, Bern, Geneva and Zurich have understood. It is thus no coincidence that they try to attract foreign visitors by hosting interesting exhibitions such as Baselworld, the International Motor Show in Geneva or prestigious events such as the UEFA Euro 2008, the stage arrival of the Tour de France in Bern or the International movie award in Zurich.

It is obvious that global megacities have more hotel rooms, international meetings and air traffic.



2 Share of foreign employees in relation to total number of employees

The high quality of life is truly positive and one of the main reasons for the “Swiss success model”.

Quality of life

*People who live, work and play in a city look for the highest quality of life for themselves and their children. It is not only about economics or education, but about the overall comfort of living. The quality of life in a city is shown by the following indicators: **Health, safety and security, Sustainability and the natural environment, Demographics and livability and Transportsysteme und Infrastruktur.***

When it comes to quality of life, all of the Swiss cities show a remarkable world-class performance: In the overall rankings, Basel, Bern, Geneva and Zurich are within the top ten, and Basel even emerges as the winner in the race. Only three non-European cities have achieved a top ten ranking: Toronto, Sydney and San Francisco. These too are not among the world's megacities.

Health, safety and security

The principles of the Maslow Hierarchy of Needs can be applied to cities as well. The *Health, safety and security* indicator reflects a basic requirement of the citizens; only when this is in place, a city is able to develop healthily. All of the Swiss cities score an excellent performance in this indicator, and Bern even climbs the podium worldwide. Zurich, Geneva and Basel are in second place, joined by Tokyo.

Only when it comes to the *Safety and health risk* variable, the Swiss cities end up at the bottom of the list. This ranking is based on a study by Lloyds and refers to the national gross national product (GNP), which is at risk in case of major disasters. Considering the disproportionate importance

Rank	Cities	Transportation and infrastructure	Health, safety and security	Sustainability and natural environment	Score
1	Basel	179	164	180	650
2	Stockholm	168	149	184	649
3	Zurich	162	164	172	645
4	Toronto	138	158	158	622
5	Paris	145	134	156	619
6	Berlin	154	145	155	613
7	Sydney	140	150	184	609
8	Bern	131	167	174	608
9	San Francisco	152	129	148	605
10	Geneva	126	164	164	605

Figure 8: In terms of quality of life, the Swiss cities are among the world's best.



Rank	Health, safety and security	Safe roads	Health system performance	End of life care	Crime	Political environment	Safety and health risk	Score
1	Bern	31	34	21	31	34	16	167
2	Tokio	23	29	22	30	26	34	164
3	Zurich	31	34	21	29	34	15	164
4	Geneva	31	34	21	26	34	18	164
5	Basel	31	34	21	27	34	17	164
6	Toronto	20	27	25	25	28	33	158
7	Sydney	21	15	33	28	25	28	150
8	Stockholm	33	24	17	22	34	19	149
9	Berlin	24	19	32	16	29	25	145
10	London	32	18	34	18	18	24	144
11	Singapur	26	30	24	34	18	12	144
12	Amsterdam	27	16	31	23	28	13	138
13	Paris	22	23	26	15	25	23	134
14	Madrid	25	26	13	21	16	30	131
15	Hong Kong	34	22	14	33	16	11	130
16	San Francisco	18	13	30	20	22	26	129
17	Los Angeles	18	13	30	11	22	27	121
18	Seoul	13	25	16	24	14	29	121
19	Chicago	18	13	30	14	22	22	119
20	New York	18	13	30	14	22	21	118
21	Milan	19	28	15	17	23	14	116
22	Dubai	14	17	23	32	9	6	101
23	Mexico City	12	9	8	5	12	32	78
24	Shanghai	8	22	3	19	6	7	65
25	Johannesburg	1	2	12	2	14	31	62
26	Beijing	8	22	3	9	5	8	55
27	Moscow	6	4	7	7	2	20	46
28	Jakarta	11	5	6	12	4	5	43
29	Rio de Janeiro	4	7	10	3	10	9	43
30	São Paulo	4	7	10	4	8	10	43
31	Kuala Lumpur	2	8	11	8	11	2	42
32	Mumbai	10	3	5	10	8	4	40
33	Bogotá	9	14	4	6	3	3	39
34	Lagos	5	1	1	1	2	1	11

Figure 9: In terms of Health, safety and security, the Swiss cities are in top positions.

of the four cities for Switzerland's GNP, this ranking comes as no surprise.

The highly stable political environment, the cities' comparatively low crime rate and relatively safe roads are in a good balance with the health system. For years, these characteristics have undoubtedly contributed to Switzerland's attractiveness as a business hub, tourist destination or permanent place of residence.

In all aspects of quality of life, the Swiss cities perform well or very well. The high quality of life is truly positive and one of the main reasons for the "Swiss success model". If the cities are to remain successful, however, they need to defend their leading position in this indicator. Investing in *Road safety* and a high-quality *Health system performance* will also be necessary in the future. Particularly in view of the aging population, the *End of life care* will become increasingly important and require considerable resources.

Another important factor to be maintained is the stable political system. The distinct sense of consensus between the language regions, between urban/rural areas and above all between the political parties contributes to the pronounced stability of Switzerland and obviously represents a unique selling point.

Sustainability and natural environment

In a global comparison, all four Swiss cities are among the top six in the *Sustainability and natural environment* indicator. Only Stockholm and Sydney show a stronger performance.

With an environmentally conscious population, the Swiss cities are, together with Berlin, world leaders in recycling. The main reason for this is that residual waste in Switzerland is largely separated and, if it cannot be recycled directly, transported to incinerators to be converted into electricity or usable heat.

The Air pollution variable shows that global rankings should not be taken out of their local context. Even when the Swiss cities score a very high ranking in this variable amongst the other world cities, air pollution still presents a health risk. Particulate matter, nitrogen dioxide and ozone are significantly higher in the cities than in the rural areas. All four Swiss cities are striving to improve by further developing public transport or by consistently promoting bicycle traffic, which offers interesting potential. In a national comparison³, none of the four cities is among the top ten.

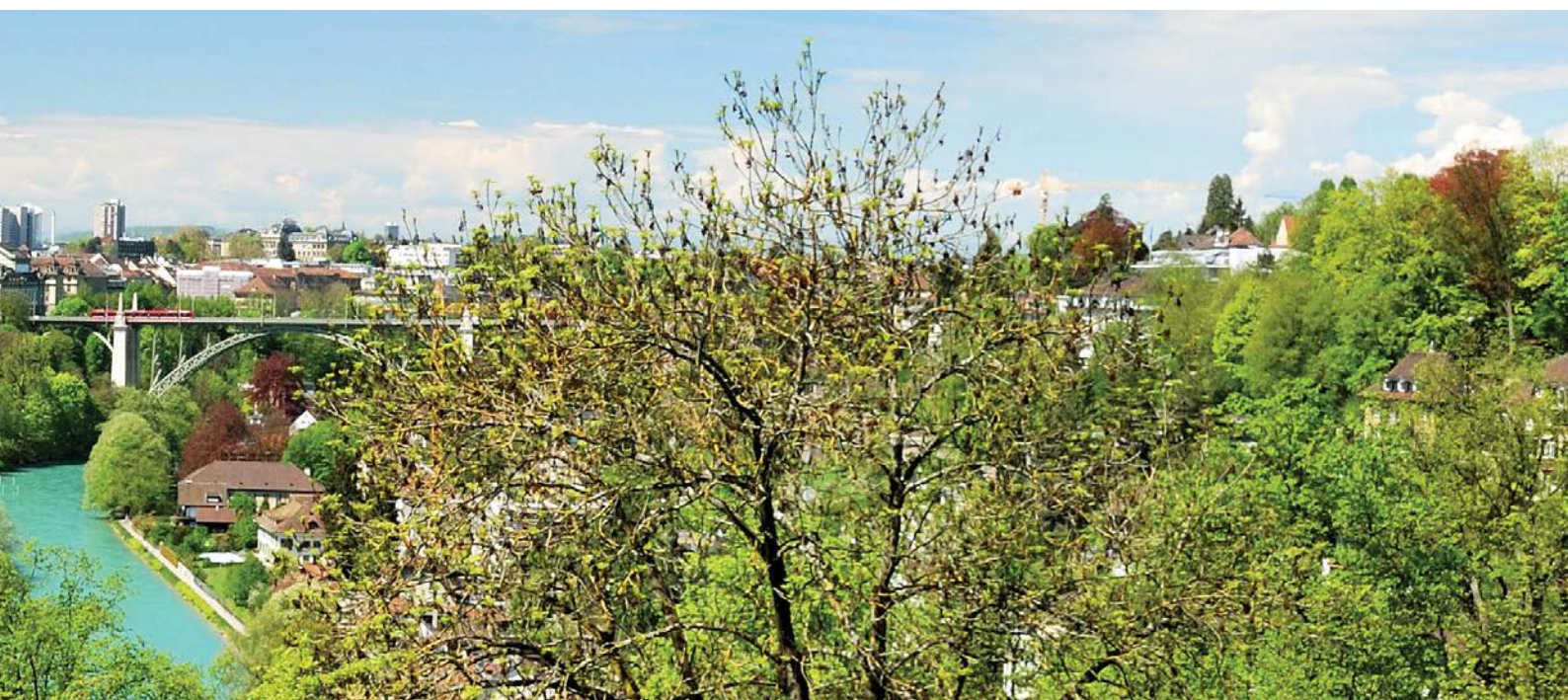
There are encouraging initiatives to recycle waste and reduce air pollution. Besides this, the Swiss cities should foster their green spaces and public parks. Citizens, visitors and businesses alike are attracted to green and sustainable cities as they provide a high-quality living environment.

Besides this, the Swiss cities should foster their green spaces and public parks.



Rank	Health, safety and security	Natural disaster risk	Natural disaster preparedness	Thermal comfort	Recycled waste	Air pollution	Public park space	Risks with water businessr	Score§
1	Stockholm	23	23	8	29	34	33	34	184
2	Sydney	31	25	33	23	32	26	14	184
3	Basel	21	33	20	34	31	14	27	180
4	Bern	8	33	12	34	30	24	33	174
5	Zurich	13	34	12	34	33	13	33	172
6	Geneva	3	31	17	34	24	25	30	164
7	Seoul	18	28	16	27	12	31	29	161
8	Toronto	31	26	9	21	23	20	28	158
9	Paris	15	14	22	24	18	32	31	156
10	Berlin	20	17	14	34	27	23	20	155
11	Amsterdam	2	24	20	29	23	30	23	151
12	San Francisco	14	11	29	26	29	28	11	148
13	Madrid	33	18	25	5	23	17	22	143
14	Milan	19	20	21	20	15	19	26	140
15	Chicago	34	15	10	19	29	15	9	131
16	Moscow	32	10	7	8	13	34	24	128
17	London	17	28	23	16	25	4	12	125
18	New York	25	13	16	7	20	29	8	118
19	Los Angeles	10	9	30	25	17	22	4	117
20	Tokio	1	30	26	11	27	6	13	114
21	Rio de Janeiro	29	3	28	1	7	27	16	111
22	Johannesburg	28	6	33	3	6	12	18	106
23	Hong Kong	5	29	25	17	16	3	10	105
24	Singapur	26	22	4	15	19	8	5	99
25	São Paulo	22	4	31	2	12	2	25	98
26	Beijing	25	19	13	14	2	21	2	96
27	Mexico City	11	8	34	12	5	11	15	96
28	Shanghai	10	21	18	18	4	18	6	95
29	Bogotá	6	7	27	9	15	5	21	90
30	Kuala Lumpur	12	12	1	7	10	7	19	68
31	Lagos	27	1	5	10	3	1	17	64
32	Mumbai	16	5	7	22	2	9	1	62
33	Dubai	5	16	3	4	10	10	7	55
34	Jakarta	7	2	2	14	8	16	3	52

Figure 10: Only Stockholm and Sidney are more sustainable than Basel, Bern, Geneva and Zurich.



Demographics and livability

In the rankings on *Demographics and livability*, only Geneva was able to make it to a top ten position. With only a few points behind Chicago and Stockholm, Zurich is in twelfth place.

When it comes to *Cultural vibrancy*, the Swiss cities fall behind the big world cities. This comes as no surprise, as no Swiss city can compete with the cultural activities of megacities like London, Paris, New York or Berlin. But even within Europe, the Swiss cities are at the bottom of the ranking. At least Zurich or Geneva should be able to reach a similar score as Stockholm, Madrid or Milan.

In general culture is a driving force for the success of city life. "The town/region that has the most ballets, theatres and symphony orchestras wins", Arthur Bienenstock, Professor at Stanford University, former science policy advisor to Bill Clinton, says. This statement is supported by the World Cities Culture Forum, a major new global initiative on culture and the future of cities. The World Cities Culture Summit 2014 in Amsterdam was attended by more than 25 global cities. At this summit Dr. Benjamin Barber argued that cities and culture are inseparably linked as they share the same essential dimensions defining both: the public, democracy and interdependence. The summit therefore not only addressed the issue of the contribu-

tion of culture to the world and city economies but also its essential role in the success of society in the 21st century. This underlines the importance of cultural assets in a city to create attractiveness.

Looking at the *Quality of living* in the four Swiss cities, they rate well in the top five worldwide. They score even better when it comes to *Well-being of senior citizens*: Basel, Bern, Geneva and Zurich score second place, joined by Stockholm.

In terms of the average age of the working population, the Swiss cities are at the bottom of the league already today. In the short term, this ranking is not an issue. In the medium term, however, it will challenge the cities to attract

Rank	Demographics and livability	Entertainment and attractions	Quality of life	Working age population	Quality of housing	Relocation attractiveness	Well-being of senior citizens	YouthfulCities Index	Score
1	New York	32	15	12	33	33	26	34	185
2	Paris	33	27	18	29	30	18	29	184
3	London	34	16	13	32	34	20	33	182
4	Los Angeles	28	21	14	34	29	26	26	178
5	San Francisco	17	18	28	25	31	26	31	176
6	Toronto	20	34	19	11	27	29	28	168
7	Amsterdam	22	24	24	31	15	27	24	167
8	Berlin	30	25	15	9	20	28	32	159
9	Geneva	5	31	7	30	23	33	22	151
10	Chicago	23	22	9	18	24	26	27	149
11	Stockholm	15	28	3	24	14	34	30	148
12	Zurich	10	32	5	23	21	33	23	147
13	Hong Kong	12	23	27	28	25	12	17	144
14	Bern	4	30	11	19	19	33	20	136
15	Sydney	13	33	4	16	32	19	18	135
16	Madrid	27	20	8	20	26	17	15	133
17	Seoul	24	14	29	27	11	9	16	130
18	Tokio	29	26	10	5	18	22	19	129
19	Basel	4	30	6	10	22	33	22	127
20	Mexico City	25	5	31	16	9	14	25	125
21	Singapur	8	18	22	17	28	21	6	120
22	Dubai	18	10	34	22	16	16	1	117
23	Moscow	31	12	20	21	5	5	11	105
24	Rio de Janeiro	19	8	16	26	13	7	13	102
25	Shanghai	21	9	33	3	12	11	8	97
26	Beijing	26	11	32	2	7	10	8	96
27	Milan	14	19	1	9	17	13	14	87
28	São Paulo	16	8	21	12	6	7	10	80
29	Kuala Lumpur	6	13	25	4	8	15	3	74
30	Bogotá	11	4	30	6	2	8	12	73
31	Johannesburg	7	8	26	7	10	2	9	69
32	Mumbai	2	3	23	14	4	4	5	55
33	Jakarta	9	2	17	13	3	3	4	51
34	Lagos	1	1	2	1	1	1	2	9

Abbildung 11: xxx.

enough working age professionals. In the future, it will be even more important to attract young talents to the cities and engaging seniors in the labour process.

Cultural assets in a city create attractiveness.



Transportation and infrastructure

In terms of Transportation and infrastructure, Basel scores an excellent second place; Zurich is among the top five. Like *City gateway*, however, this indicator is also to the disadvantage of the Swiss cities: The number of taxis and construction activity are mainly measured in absolute values. If we exclude these from the analysis, all of the Swiss cities are in the first third of the ranking, while Basel and Zurich even hold a leading position.

The Swiss cities maintain an attractive public transport system that is affordable even by international standards. As a result, traffic congestion is low compared to other cities around the globe and commuting is considered pleasant.

There is a significant correspondence between the indicator *Transport and infrastructure* and *Environmental impact*. Thanks to the good public transport system, the Swiss cities perform very well in both indicators and are attractive in an international comparison. The Swiss administrative

levels are aware of this and agree that Switzerland needs to offer a dense, high-quality choice of public transport at a reasonable price. This insight has been underlined by the general reconstruction of the Zurich railway station or the extensive enlargement of the Bern railway station.

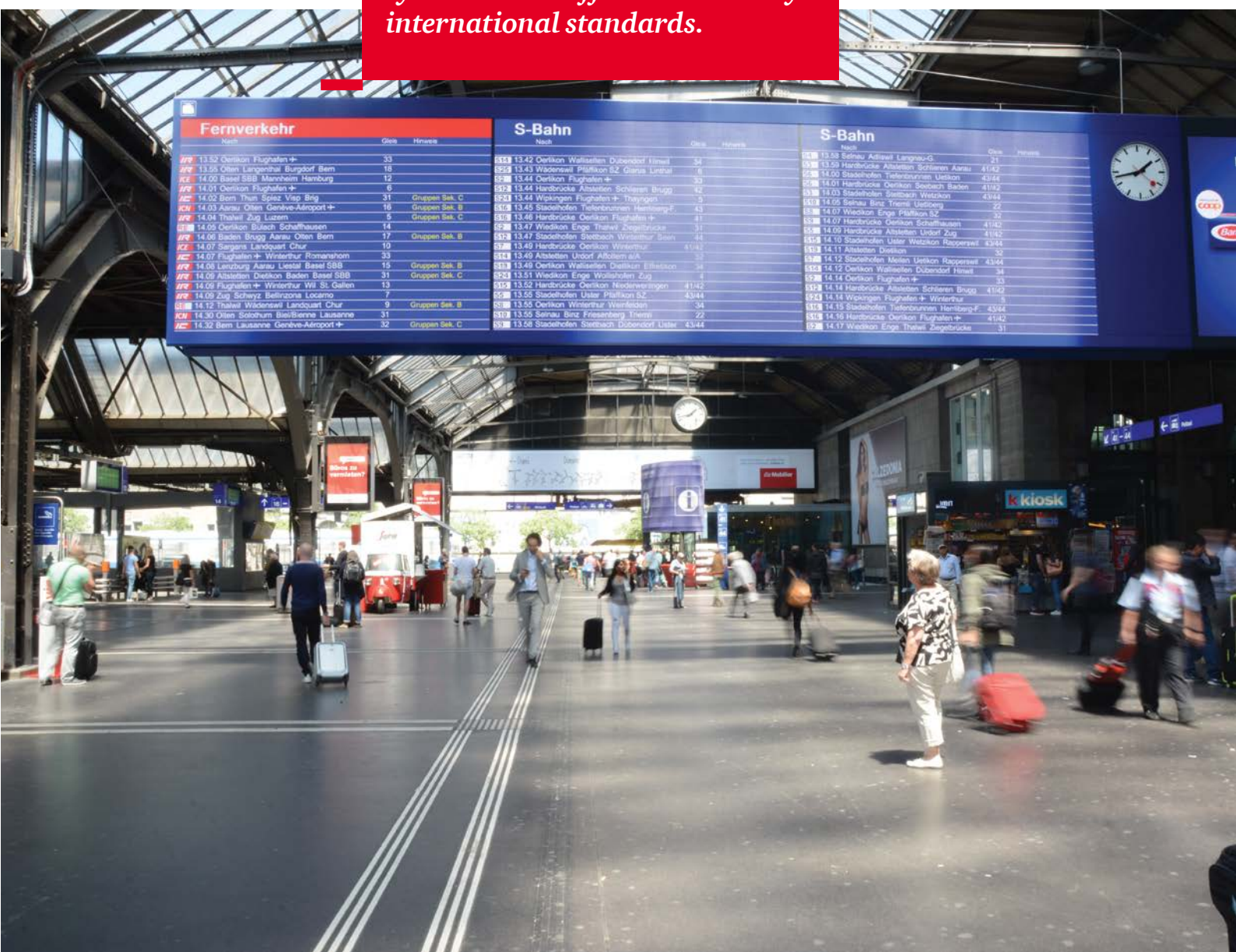
Rank	Transportation and infrastructure	Mass transit coverage	Cost of public transport	Licensed taxis	Construction activity	Housing	Traffic congestion	Ease of commute	Score
1	Singapur	21	27	26	30	34	34	21	193
2	Basel	32	28	13	7	32	33	34	179
3	Dubai	12	21	23	34	28	26	24	168
4	Stockholm	29	5	31	14	27	31	31	168
5	Zurich	33	25	20	2	22	28	32	162
6	Chicago	13	31	15	22	24	23	27	155
7	Berlin	28	11	9	17	32	27	30	154
8	San Francisco	31	33	10	9	25	15	29	152
9	Paris	34	24	32	8	17	17	13	145
10	New York	23	30	6	23	23	14	22	141
11	London	20	2	16	31	27	25	20	141
12	Sydney	9	8	3	28	34	30	28	140
13	Toronto	18	20	7	24	32	19	18	138
14	Madrid	27	10	28	10	19	24	19	137
15	Seoul	25	26	30	16	12	10	16	135
16	Hong Kong	17	3	14	33	17	22	26	132
17	Bern	24	18	4	3	17	32	33	131
18	Amsterdam	26	7	24	4	20	21	25	127
19	Geneva	30	13	12	6	22	20	23	126
20	Milan	22	23	22	5	17	18	17	124
21	Kuala Lumpur	14	14	33	20	10	16	12	119
22	Tokio	16	19	21	22	18	12	10	118
23	Los Angeles	8	34	1	29	32	7	4	115
24	Mexico City	11	29	34	13	7	1	9	104
25	Rio de Janeiro	6	15	27	32	7	11	6	104
26	Moscow	15	12	25	27	3	4	14	100
27	Beijing	5	32	19	11	10	9	11	97
28	Shanghai	10	9	8	27	12	13	15	94
29	São Paulo	7	22	11	27	8	3	7	85
30	Bogotá	3	17	29	18	4	8	5	84
31	Johannesburg	4	4	5	15	17	29	8	82
32	Mumbai	19	6	18	19	2	5	2	71
33	Jakarta	3	16	17	13	7	7	3	66
34	Lagos	3	1	2	2	1	2	1	12

Figure 12: Basel and Bern are particularly commuter-friendly; Zurich and Geneva have a very dense public transport network.

Rank	Transportation and infrastructure	Mass transit coverage	Cost of public transport	Housing	Traffic congestion	Ease of commute	Score
1	Basel	32	28	32	33	34	159
2	Zurich	33	25	22	28	32	140
3	Singapur	21	27	34	34	21	137
4	San Francisco	31	33	25	15	29	133
5	Berlin	28	11	32	27	30	128
6	Bern	24	18	17	32	33	124
7	Stockholm	29	5	27	31	31	123
8	Chigaco	13	31	24	23	27	118
9	New York	23	30	23	14	22	112
10	Dubai	12	21	28	26	24	111
11	Sydney	9	8	34	30	28	109
12	Geneva	30	13	22	20	23	108

Figure 13: Basel, Bern and Zurich are the world's top three commute destinations.

The Swiss cities maintain an attractive public transport system that is affordable even by international standards.



Zurich and Basel should therefore continue to create an attractive environment for internationally active companies.

Economics

*Cities are the engines of economic growth but this growth needs to be sustainable in a social, environmental and financial sense. Urban regions are looking to improve their attractiveness for visitors, talent, businesses and investments. This has led to increased competition amongst cities on a global scale. In this chapter we assess the economics of the cities by looking at the indicators **Economic clout**, **Ease of doing business** and **Cost**.*

Economic clout

Economic clout reflects, to some extent, the economic history of a city. This is one of the reasons why we see world cities like London, Beijing and New York top the rankings here. Zurich ranks at ninth place and is the only Swiss city with a top ten position.

Figure 14: Zurich is a top employer in financial and business services; Basel, Bern and Geneva impress with their high productivity

The other Swiss cities are placed lower in the ranking. This is partly due to the fact that Switzerland is growing more slowly, both in terms of jobs and GNP. In the *Attracting Foreign Direct Investment* score, the Swiss cities also show an average performance. This variable is geographically very narrowly defined and thus unfavourable for the Swiss cities. If direct investments were taken into account also in the surrounding area of the cities, for example in the Lake Geneva region or in the Canton of Zug, Geneva and Zurich would score a significantly better ranking.

In the variables which give an indication of the historical economic power of a city, Zurich ranks eighth and Basel 19th when it comes to *Number of*



Rank	Economic clout	Number of Global 500 Headquarters	Rate of employment growth	Financial and business services employment	Attracting FDI	Productivity	Rate of real GDP growth	Score
1	London	32	26	31	32	23	27	171
2	New York	30	29	25	28	33	20	165
3	Beijing	34	19	29	30	8	34	154
4	San Francisco	15	33	28	8	34	28	146
5	Madrid	24	31	22	21	14	24	136
6	Sydney	20	27	20	24	19	22	132
7	Paris	32	3	30	26	24	10	125
8	Shanghai	28	5	16	33	10	32	124
9	Zurich	28	18	33	7	31	7	124
10	Singapore	15	28	13	34	16	16	122
11	Amsterdam	20	11	34	20	20	13	118
12	Stockholm	15	15	27	9	26	25	117
13	Toronto	24	21	26	19	18	8	116
14	Hong Kong	22	17	11	29	17	17	113
15	Kuala Lumpur	10	32	14	15	12	30	113
16	Dubai	6	23	4	31	22	26	112
17	Milan	10	16	32	17	21	11	107
18	Tokyo	33	4	9	23	25	9	103
19	Seoul	29	6	15	19	13	19	101
20	Los Angeles	6	25	12	7	28	21	99
21	Chicago	20	13	19	5	27	12	96
22	Mexico City	20	22	5	14	11	23	95
23	Mumbai	25	10	3	22	1	33	94
24	Jakarta	15	24	2	13	7	31	92
25	Johannesburg	6	30	23	11	5	15	90
26	Basel	20	7	21	2	32	4	86
27	Moscow	26	2	17	28	9	2	84
28	Geneva	6	14	24	3	30	6	83
29	Berlin	10	8	18	17	15	14	82
30	Lagos	6	34	1	5	2	29	77
31	Bogotá	10	20	7	10	3	18	68
32	São Paulo	22	1	8	25	6	1	63
33	Bern	6	9	10	1	29	5	60
34	Rio de Janeiro	15	12	6	13	4	3	53

Figure 14: In terms of Health, safety and security, the Swiss cities are in top positions.

Global 500 headquarters. Wherever these headquarters move, they draw in a lot of economic activity which in turn helps to drive growth and create jobs not only in the relevant sector but also in affiliated sectors. This effect is particularly evident in Zurich, as the city on the Limmat River ranks second worldwide in the variable *Financial and business services employment*. Zurich and Basel should therefore continue to create an attractive environment for internationally active companies.

It is important not to forget the significance of the Small- and Mediumsized Enterprises (SMEs) which are – at least in Europe – the driving force

behind a city's economic growth and enable the diversification of its economy. This significantly strengthens the resilience of the urban economy.

Geneva's attractiveness is significantly less driven by large companies. Here it is rather the numerous, particularly large, international organisations that have a strong magnet effect on other non-profit and non-governmental organisations.

In terms of *Economic clout*, Bern is lagging behind Zurich and Basel. This comes as no surprise, as Bern strongly depends on the administration and the companies affiliated with the Confederation and is therefore less

dynamic. However, Bern is still one of the five most productive cities in the world. This is particularly interesting because the short distances in Switzerland make Bern an attractive location for foreign enterprises. The Canton of Bern is aware of this strength and has joined the "Greater Geneva Bern area" (GGBa)⁴ with its economic development. Bern is thus making efforts to become a location option for global company headquarters.

⁴ Investment promotion agency for Western Switzerland including the cantons of Berne, Fribourg, Vaud, Neuchâtel, Geneva and Valais.

Ease of doing business

In today's global environment businesses have become more mobile and can relatively easily move their operations to another city in another country. Ease of doing business is one of the determinants for a company to settle within the city's boundaries, and stay there, creating employment opportunities, attracting FDI and driving growth. The ease by which a business can operate within a city is often determined by regulations on both a national and local level.

Ease of doing business is a clear indicator for a city's competitive advantage, but the Swiss cities are only in the middle part of the ranking. With 16th place, Geneva is the best-ranked Swiss city. The main reason for this average result is the administrative processes. In the variables *Starting a business*, *Resolving insolvency*, *Level of shareholder protection* and *Tax efficiency* (when submitting tax documents), the Swiss cities are far behind the respective leader of the ranking.

All of the Swiss cities should eliminate restraining factors in their economic conditions. If we were to exclude the four variables mentioned above as

well as the number of embassies and consulates, all of the Swiss cities would rank within the top six. In other words: By removing administrative hurdles, the Swiss cities could boost additional economic dynamism.

Rank	Ease of doing business	Ease of starting a business	Resolving insolvency	Ease of entry: number of countries with visa waiver	Foreign embassies or consulates	Level of shareholder Protection	Operational risks
1	Singapur	33	22	33	22	33	33
2	Hong Kong	31	19	32	25	34	34
3	London	24	25	29	34	32	20
4	Toronto	34	27	13	17	30	27
5	Stockholm	26	23	19	27	18	27
6	Paris	27	21	14	33	27	18
7	New York	19	32	11	23	23	25
8	Los Angeles	20	32	11	18	23	25
9	Seoul	29	28	31	28	25	13
10	Kuala Lumpur	30	15	34	24	31	15
11	Chicago	21	32	11	11	23	25
12	Berlin	8	33	21	30	12	19
13	San Francisco	22	32	11	7	23	25
14	Sydney	32	24	6	14	9	33
15	Amsterdam	28	26	24	4	4	25
16	Geneva	15	13	28	16	8	33
17	Bern	15	13	28	13	8	33
18	Zurich	15	13	28	8	8	33
19	Madrid	11	20	17	26	19	16
20	Tokio	10	34	15	31	18	18
21	Basel	15	13	28	1	8	33
22	Milan	23	17	18	20	25	12
23	Johannesburg	17	14	20	2	27	11
24	Mexico City	16	18	16	19	11	9
25	Dubai	18	3	7	7	14	15
26	Bogotá	9	16	30	9	28	11
27	Moscow	25	5	5	29	3	2
28	Beijing	6	9	3	32	2	9
29	São Paulo	1	7	24	13	18	6
30	Rio de Janeiro	2	7	24	7	18	6
31	Shanghai	7	9	3	10	2	9
32	Mumbai	3	1	3	15	30	4
33	Jakarta	4	4	12	21	14	4
34	Lagos	5	2	4	3	11	1

Figure 15: The administrative hurdles in the Swiss cities are clearly too high.

Rank	Ease of doing business	Ease of entry: number of countries with visa waiver	Operational risks	Workforce risk management	Score
1	Singapur	33	33	33	99
2	Hong Kong	32	34	29	95
3	Geneva	28	33	28	89
4	Bern	28	33	28	89
5	Zurich	28	33	28	89
6	Basel	28	33	28	89
7	London	29	20	31	80
8	Toronto	13	27	32	72
9	New York	11	25	34	70

Figure 16: Without administrative obstacles, the Swiss cities would be even more attractive compared to other locations.

By removing administrative hurdles, the Swiss cities could boost additional economic dynamism.

Workforce risk management	Tax efficiency	Score
33	32	241
29	33	237
31	27	222
32	26	206
22	31	193
18	25	183
34	11	178
30	18	177
15	7	176
13	9	171
24	18	165
17	22	162
23	18	161
19	21	158
21	24	156
28	15	156
28	15	153
28	15	148
14	23	146
16	4	146
28	15	141
10	5	130
8	28	127
5	30	124
20	34	118
2	8	113
4	29	102
12	20	93
9	6	84
7	10	81
11	20	71
6	3	65
3	2	64
1	1	28



Cost

Another indicator of the competitive advantage of a city is *Cost*. This is a key factor for businesses, citizens and students to determine where they wish to be located.

In terms of costs, the Swiss cities are quite competitive, as they are all among the top ten, with Basel and Bern even taking two podium places. Within Europe, the first three medals belong to Basel, Bern and Zurich. Geneva ranks fifth behind Berlin. We consider the cost advantage to be an excellent starting point for the Swiss cities to further expand their strengths.

The only variable where the Swiss cities are significantly lagging behind is *Cost of living*. What is interesting is that the PwC study “Cities of Opportunity” also assesses the *Purchasing power*. In this variable, the Swiss cities are in top positions, which puts the high cost of living into perspective. The question asked here is: Is a society concerned with “the cheaper the better” or with striking a balance between wages and prices? We consider the latter conclusion more probable, because looking at the top ten ranking on *Cost*, we see a majority of Northern American and Northern European cities on the list which have a high *Cost of living*.

Rank	Cost	Total corporate tax rate	Private tax rate	Cost of business occupancy	Cost of living	Purchasing power	Affordability of rent	Score
1	Johannesburg	30	26	34	29	14	22	155
2	Basel	30	19	32	3	32	32	148
3	Bern	30	15	33	4	30	33	145
4	Zurich	30	23	19	2	34	31	139
5	Toronto	32	11	29	16	23	25	136
6	Berlin	13	9	31	20	27	34	134
7	Los Angeles	20	7	23	22	31	29	132
8	Dubai	34	34	16	21	13	14	132
9	Kuala Lumpur	21	25	25	30	8	20	129
10	Geneva	30	20	14	1	33	30	128
11	Chicago	17	5	30	17	26	27	122
12	Madrid	11	14	26	23	17	28	119
13	Bogotá	1	31	28	33	7	17	117
14	Jakarta	25	33	20	32	2	1	113
15	São Paulo	3	29	17	25	12	23	109
16	Singapore	33	18	8	9	22	18	108
17	Hong Kong	31	32	2	18	16	8	107
18	Seoul	23	30	12	15	11	15	106
19	Amsterdam	19	1	27	12	19	19	97
20	Mexico City	9	22	24	31	5	5	96
21	Sydney	14	10	11	6	28	26	95
22	Mumbai	8	27	18	34	3	2	92
23	Lagos	22	21	13	24	2	9	91
24	San Francisco	18	7	15	10	29	10	89
25	Stockholm	12	4	21	11	20	21	89
26	Rio de Janeiro	2	29	10	26	10	11	88
27	Milan	6	2	22	14	15	24	83
28	Tokyo	10	17	5	13	18	12	75
29	Moscow	15	24	4	19	9	3	74
30	New York	16	3	9	7	25	13	73
31	London	24	13	1	5	21	7	71
32	Paris	7	8	7	8	24	16	70
33	Shanghai	5	16	6	27	6	6	66
34	Beijing	4	12	3	28	4	4	55

Figure 17: When assessing the costs in the Swiss cities, the result is quite respectable.



We consider the cost advantage to be an excellent starting point for the Swiss cities to further expand their strengths.



Focus on: Basel



In the global rankings, the city of Basel occupies 13th place. The following figure shows a detailed presentation of the indicators:

Basel scores a top five spot across four indicators and even achieves second place on a global level and first place among all European cities. As in the case of Zurich, the low ranking in the *City gateway* indicator is due to the fact that it depends on absolute values. However, the border location and the enormous number of commuters crossing the border almost unnoticed in public transport every day paint a completely different picture in terms of *City gateway*.

Thanks to continuous improvements and expansions, the city achieves a very good position in the *Transportation and infrastructure* indicator. Not only the availability, but also the relatively low price of public transport contributes to this. Commuting

- within the top 5
- within the top 10
- outside the top 10

	Ranking #
Transportation and infrastructure	No. 2
Cost	No. 2
Sustainability and natural environment	No. 3
Health, safety and security	No. 5
Technology readiness	No. 7
Intellectual capital and innovation	No. 11
Demographics and livability	No. 19
Ease of doing business	No. 21
Economic clout	No. 26
City gateway	No. 32



to work in Basel is considered particularly pleasant compared to other cities worldwide. One reason for this is that there are fewer traffic jams in Basel than in other cities thanks to the short distances travelled. As in the case of Zurich, Basel's excellent position in terms of Cost is a result of this indicator including not only the *Cost of living* but also *Purchasing power* and *Tax burden*.

In the *Sustainability and natural environment* indicator, Basel is in a leading position together with Bern, Geneva and Zurich. Particularly in *Recycling*, *Natural disaster preparedness*, *Air quality* and *Water* (quality and availability), Basel is one of the world's leading cities.

Same as the other Swiss cities, Basel finishes with an encouraging result in the *Health, safety and security* indicator. Political stability, excellent health care, relatively low crime rates and safe roads contribute to this high ranking.

In a national comparison, Basel tops the *Technology readiness* indicator and ranks globally at a good seventh place. A better ranking is prevented by the fact that Basel only scored a position in the bottom third of the ranking in the variable *Software development and multimedia design*.

Like Zurich, Basel reaches low scores on *Ease of doing business*. From a detailed perspective, two variables are particularly striking here:

- In terms of the *Number of embassies and consulates*, Basel ranks at the very bottom. However, the embassies and consulates of the most important countries are accessible from here in less than two hours by car.
- Within the *Level of shareholder protection* indicator, Basel ranks eighth. This variable is based on an assessment by the World Bank.

Like the other cities, Basel should continue to build on its strengths. In our opinion, the city needs to invest primarily in *Ease of doing business*. At the same time, Basel has a strong position in the *Technology readiness* indicator. It is obvious that the leading technology cities will continue to be successful in this sector in the future.



Focus on: Bern



Bern finishes 20th in the overall ranking and shows the following performance in the individual indicators:

As the smallest city in the overall ranking, Bern falls behind the larger cities in some indicators. This is understandable, as some rankings are quantity-dependent; accordingly, Bern is at the bottom of the list. Nevertheless, the Swiss capital surprises in several respects: In *Health, safety and security*, the city takes the number one spot globally and is the only Swiss city to lead an international ranking. Bern scores a top five position in two other indicators: In *Cost* as well as in *Sustainability and natural environment*, the Swiss capital scores excellent results.

These are the solid foundations the city and region of Bern can build on. In addition, Bern should try to make further progress in *Technology readiness* and *Ease of doing business*.

- within the top 5
- within the top 10
- outside the top 10

	Ranking #
Health, safety and security	No. 1
Cost	No. 3
Sustainability and natural environment	No. 4
Demografie und Lebensqualität	No. 14
Technologiebereitschaft	No. 14
Transportsysteme und Infrastruktur	No. 17
Intellektuelles Kapital und Innovationskraft	No. 17
Wirtschaftliche Rahmenbedingungen	No. 17
Wirtschaftskraft	No. 33
Weltoffenheit	No. 34



The capital of the Confederation shows a remarkably strong performance across the soft indicators *Health, safety and security, Sustainability and natural environment* as well as in the key indicator *Cost*. However, the city is not using this strength enough to become more attractive and remain financially strong in the long term. It is these soft indicators in particular that persuade new companies to settle in a city and that make it attractive for tourists, students and residents. In order for a city to fully exploit these strengths, it needs to limit its weaknesses in *Tax burden* as well as remove administrative hurdles. Bern certainly needs to take action here.



Focus on: Geneva



Globally, Geneva ranks in 17th position. A detailed classification of the individual indicators looks as follows:

- within the top 5
- within the top 10
- outside the top 10

	Ranking #
Health, safety and security	No. 4
Sustainability and natural environment	No. 6
Intellectual capital and innovation	No. 9
Demographics and livability	No. 9
Cost	No. 10
Technology readiness	No. 16
Ease of doing business	No. 16
Transportation and infrastructure	No. 19
City gateway	No. 27
Economic clout	No. 28

Geneva is among the top ten in five indicators, and within Switzerland, the city of Calvin is in a top position when it comes to *Ease of doing business*. The main difference to its Swiss peers lies as expected mainly in the good ranking in the *Number of embassies and consulates*.

Geneva is also Switzerland's top city in terms of *Demographics and livability*. What underlies the advantage over Zurich as vice Swiss champion is the *City Brand* variable, which is based on the parameters *Attractions and Buzz* (voices in social media and press). Here Geneva benefits from its international flair. In this variable Geneva ranks fourth globally, just above



Paris and right behind Los Angeles, New York and Amsterdam.

The city reaches rather low scores on *City gateway*; as in the case of Zurich and Basel, the reason for this is that this indicator gives such a high weight to absolute values. The resulting score is particularly untrue for Geneva: Not only is Geneva a city of the UN and a border city (a larger part of the canton borders on France than on Switzerland), but also has a share of 48 percent of foreigners⁵ in the permanent resident population. No other city in the overall rankings even comes close to this value. From this point of view, Geneva deserves much better results in *City gateway*.

Geneva also finishes with a relatively low score on *Economic clout*. Taking a closer look at this indicator, we see that it is distorted by the variable *Attracting Foreign Direct Investment*, as the global study only includes the

urban area. However, Geneva's *Economic clout* covers the entire region from Geneva to Bern. The assessment of the variable should therefore be based on the size, location and orientation of the regional economic development⁶. French-speaking Switzerland with Geneva as its driving force has grown faster than German-speaking Switzerland since 2001⁷. If not only the city but also the greater Geneva region were included in the assessment, Geneva's ranking in *Attracting Foreign Direct Investment* and thus its result in *Economic clout* would certainly be more gratifying.

Historically, Geneva – like Zurich – has always been an inspiration to open-minded people and thus evolved into an open, free and democratic city. This multicultural diversity is one of its key assets. It enables a close proximity of people, knowledge and ideas driving the

city's entrepreneurship and innovative spirit. The city thrives on creative potential, complementarity and willingness to engage in dialogue.

Finally, Geneva achieves slightly lower scores in the *Transportation and infrastructure* indicator than its Swiss peers. The city could certainly enhance its attractiveness if it would address this issue.

5 "Federal Statistical Office", Geneva 2015

6 See www.ggba-switzerland.ch



Focus on: Zurich



In the overall ranking, Zurich scores a 5th place and is ranked as follows in the individual indicators:

Similar to other leading cities, Zurich strikes a good balance across the ten indicator groupings. The city performs particularly well in the areas of Intellectual capital and innovation, Health, safety and security, Cost, Sustainability and natural environment as well as *Transportation and infrastructure*.

Zurich achieves an excellent result in *Intellectual capital and innovation*, where it ranks second just behind London. This comes as no surprise and only confirms the self-image of the city and region, as can also be read on the website⁸ of the “Greater Zurich Area”.

What is surprising is the excellent position of Zurich in the *Cost* indicator. Taking a closer look, we see that this is because this indicator is not limited to the variable *Cost of living*, but also

- within the top 5
- within the top 10
- outside the top 10

	Ranking #
Intellectual capital and innovation	No. 2
Health, safety and security	No. 3
Cost	No. 4
Sustainability and natural environment	No. 5
Transportation and infrastructure	No. 5
Economic clout	No. 9
Technology readin	No. 10
Demographics and livability	No. 12
Ease of doing business	No. 18
City gateway	No. 19



takes into account *Purchasing power* and *Tax burden*. Especially in terms of *Purchasing power*, Zurich tops the ranking worldwide.

In the ranking on *Sustainability and natural environment*, Zurich is in a leading position together with its Swiss peers. The city on the Limmat River is a world leader in *Recycling*, *Natural disaster preparedness* and *Water* (quality and availability). As in other indicators, the very good position in *Transportation and infrastructure* is the result of constant optimisation. Not only the availability, but also the relatively low price of public transport contributes to this good ranking.

Zurich scores a rather low ranking in *City gateway*. This indicator is strongly driven by quantitative values, for example when it comes to the number of *Hotel rooms*, *International tourists*, *International Association Meetings* or *Passenger flows*. In this indicator, none of the Swiss cities can compete with the world's major megacities. In return, the share of the foreign

population in the city of Zurich at the end of 2016 was 32 percent according to the Statistical Office of the city of Zurich. Compared to foreign cities, this rate is rather high and significantly puts the result of the *City gateway* assessment into perspective.

Another indicator where Zurich reaches low scores is on *Ease of doing business*. Here the city on the Limmat River scores particularly low in the following to variables:

- In the *Number of embassies and consulates*, Zurich ranks eighth. This is understandable, because access to the embassies and consulates of the most important countries is provided in Bern.
- In terms of the *Level of shareholder protection* indicator, Zurich ranks eighth as well. This variable is based on an assessment by the World Bank.

In seven out of ten indicators, Zurich takes high positions in the first third of the global ranking. Only in the

indicators *Demographics* and *livability*, *Ease of doing business* and *City gateway* the city reaches lower scores. These excellent results show that the foundations for the future of Zurich are in place.

Historically, Zurich has always embodied an open-minded spirit and has evolved into a free-thinking and democratic society, even though it is much smaller than New York and London. This diversity within the population is one of its key assets, which brings people, knowledge and ideas together, which in turn supports an entrepreneurial and innovative spirit. Zurich thrives on creative potential, complementarity and collaboration.

We believe that Zurich should continue to cultivate these distinctive strengths, particularly focusing on *Technology readiness* and *Ease of doing business*. Because the successful cities in technology will continue to dominate this sector in the future as well.

About the study

The global PwC study “Cities of Opportunity” is based on publicly available data supported by extensive research. The main sources are:

- Global multilateral development organisations such as the World Bank and the International Monetary Fund
- National statistics organisations such as UK National Statistics and the US Census Bureau, or, for the Swiss cities, the Federal Statistical Office
- Commercial data providers

For the Swiss study, data was collected during autumn/winter of 2017. In some cases, national data was used as a proxy for city data. This was only done in cases where no consistent, highly reliable sources of publicly available city data were available. The scoring methodology was developed to ensure transparency and simplicity for readers, as well as comparability across cities. The result contains both hard facts and provides a foundation for further analysis and discussion.

The purpose of the global PwC study is to develop an accurate reflection of the balance of a city. This shows the connection that exists between good economic, social and environmental indicators. Among the ten main indicators, five correlate in a close positive pattern – *Intellectual capital and innovation; Health, safety and security; Ease of doing business; Technology readiness; and Demographics and livability*. In other words, when one goes up, the others tend to do so as well.

The ten data indicator groups are based on 59 variables which jointly provide an image

of city success. In this robust sampling of variables, each individual variable has to be relevant, consistent across the sample, publicly available and collectible, current, free of skewing from local nuances and truly reflective of a city’s quality or power. In the appendix we have defined the indicators and variables used.

In attempting to score cities based on relative performance, we decided that for maximum transparency and simplicity, we would avoid giving overly complicated weights to the 59 variables in this special edition. Consequently, each variable is treated with equal importance. For each individual variable, the 34 cities are sorted from the best to the worst performing, with each receiving a score ranging from 34 for best to 1 for worst. In ties, cities are assigned the same score. This approach makes the study easily understandable and usable by all interested parties.

Data is normalised, where appropriate, minimising the likelihood of a city doing well solely because of its size and historic strength. This eliminates the need to differentiate between the variables that reflect a city’s raw power (such as the *Number of Global 500 headquarters* or *Foreign embassies*) and its quality or intensity (such as *Percent of population with higher education*).

Appendix

Key to the variables

Air pollution

Combination of measures of PM10 (particulate matter 10 micrometers) outdoor air pollution levels from the World Health Organisation (WHO) and the Numbeo Pollution Index of overall pollution in each city. The WHO's Public Health and Environment database provides annual mean concentrations of PM10 in diameters or less that reflect the degree to which urban populations are exposed to this fine matter. The Numbeo Pollution Index is generated via survey-based data. Numbeo attributes the biggest weight to air pollution, then to water pollution/accessibility as the two main pollution factors. A small weight is given to other pollution types.

Airport to CBD access

A measure of the ease of using public transit to travel between a city's central business district (CBD) and the international terminal of its busiest airport in terms of international passenger traffic. Cities are separated into categories according to whether a direct rail link exists, if so the number of transfers required, and if not whether there is a public express bus route to the airport. Cities with direct rail links are preferred to those with express bus service. Cities with rail links with the fewest transfers are ranked higher than those with more. Within categories, cities are ranked against one another according to the cost of a single one-way, adult weekday trip and the length of the trip, with each factor weighted equally.

Attracting FDI

Combined variable ranking of the number of greenfield (new job-creating) projects, plus the total US\$ value of greenfield capital investment activities in a city that are funded by foreign direct investment (FDI). Data cover the period from January 2003 through December 2012 provided by fDi Intelligence.

Broadband quality

Based on millions of recent test results from Pingtest.net, this global broadband index from Ookla compares and ranks consumer broadband connection quality around the globe. Quality is reported in R-factor, an industry-standard measure-

ment for connection quality (crucial for applications that require a steady connection such as VOIP and online gaming). The value is the mean R-factor over the past 30 days. Only tests taken within 300 miles of the server are eligible for inclusion in the index.

Cost of business occupancy

Annual gross rent divided by square feet of Class A office space. Gross rent includes lease rates, property taxes, maintenance and management costs. Data produced by CBRE Global Office Rents in US\$.

Cost of living

A relative measure of the price of consumer goods by location, including groceries, restaurants, transportation, and utilities. The relative Consumer Price Index measure does not include accommodation expenses such as rent or mortgage. Figures provided by Numbeo.

Cost of public transport

Cost of the longest mass transit rail trip within a city's boundaries to the CBD. The cost of a bus trip is used in the cities where there are no rail systems.

Crime

Weighted combination of Mercer Quality of Living 2013 reports crime score (50 percent); Intentional homicide rate per 100,000 of the city population (30 percent); and the Numbeo Crime Index, which is an estimation of the overall crime level in each city based on how safe citizens feel (20 percent).

Cultural vibrancy

Weighted combination of city rankings based on: the quality and variety of restaurants, theatrical and musical performances, and cinemas within each city; which cities recently have defined the "zeitgeist" or the spirit of the times; and the number of museums with online presence within each city. The zeitgeist rankings take into account cultural, social, and economic considerations.

Digital economy*

Economist Intelligence Unit Digital Economy Rankings 2010–Beyond E-readiness report provides an assessment of the quality of a country's infor-

mation and communications technology (ICT) infrastructure and the ability of its consumers, businesses, and governments to use ICT to their benefit. When a country uses ICT to conduct more of its activities, the economy can become more transparent and efficient.

Ease of commute**

PwC employees in each of the 30 city offices were asked, "On a scale from 1 to 10, where 1 is difficult and 10 is easy, please rate your commute to work." Data provided by PwC Employee Survey.

Ease of entry: Number of countries with visa waiver*

Number of nationalities able to enter the country for a tourist or business visit without a visa. Excludes those nationalities for whom only those with biometric, diplomatic, or official passports may enter without a visa.

Ease of starting a business***

Assessment of the bureaucratic and legal hurdles an entrepreneur must overcome [to incorporate and register a new firm. Accounts for the number of procedures required to register a firm; the amount of time in days required to register a firm; the cost (as a percentage of per capita income) of official fees and fees for legally mandated legal or professional services; and the minimum amount of capital (as a percentage of per capita income) that an entrepreneur must deposit in a bank or with a notary before registration and up to three months following incorporation. Assessment scores gathered from Doing Business 2013, The World Bank Group. US cities were differentiated from each other using the United States Small Business Friendliness 2013 Small Business Survey by Thumbtack.com in partnership with Kauffman Foundation.

Employee regulations***

Sum of three assessment scores from the World Bank's Doing Business 2013 study, including: ratio of minimum wage to average value added per worker; notice period for redundancy dismissal (for a worker with 10 years of tenure, in salary weeks); and paid annual leave for a worker with 20 years of tenure (in working days).

End-of-life care*

Ranking of countries according to their provision of end-of-life care. The Quality of Death Index by the EIU scores countries across four categories: basic end-of-life healthcare environment; availability of end-of-life care; cost of end-of-life care; and quality of end-of-life care. These indicator categories are composed of 27 variables, including quantitative, qualitative and “status” (whether or not something is the case) data. The indicator data are aggregated, normalised, and weighted to create the total index score.

Entrepreneurial environment*

Measurement of the entrepreneurial attitudes, entrepreneurial activity, and entrepreneurial aspirations in a country. The Global Entrepreneurship Index (GEINDEX) integrates 31 variables, including quantitative and qualitative measures and individual-level data.

Financial and business services employment

The number of jobs in financial and business services activity as a share of total employment in the city. Financial services includes banking and finance, insurance and pension funding, and activities auxiliary to financial intermediation. Business services includes a mix of activities across the following subsectors: real estate and renting activities, IT and computer related, R&D, architectural, engineering and other technical activities, legal, accounting, bookkeeping and auditing activities, tax, and consultancy, advertising, and professional scientific and technical services and business services where not elsewhere classified. Data sourced by Oxford Economics.

Foreign embassies or consulates

Number of countries that are represented by an embassy or consulate in each city. Figures sourced from GoAbroad.com.

Relocation attractiveness**

PwC employees in each of the 30 city offices were asked, “Of the other 29 cities in Cities of Opportunity, please rank the top three cities that you would like to work in most” Data provided by PwC Employee Survey.

Health system performance*

Measurement of a country’s health system performance made by comparing healthy life expectancy with healthcare expenditures per capita in that country, adjusted for average years of education (years of education are strongly associated with the health of populations in both mature and emerging countries). The PwC Global Healthcare team adapted methodology from the 2001 report: “Comparative efficiency of national health systems: cross-national econometric analysis.”

Hospitals and health employment

Combination of scores for: the ratio of all hospitals within each city accessible to international visitors for every 100,000 members of the total population; and the ratio of employment in the health sector per 100,000 of the population (as provided by Oxford Economics).

Hotel rooms

Count of all hotel rooms within each city.

Housing

Measure of availability, diversity, cost and quality of housing, household appliances, and furniture, as well as household maintenance and repair. This measure is based on the Mercer Quality of Living 2013 reports. US cities were differentiated from each other by their annual rise in house prices.

Incoming/outgoing passenger flows

Total number of incoming and outgoing passengers, including originating, terminating, transfer, and transit passengers in each of the major airports servicing a city. Transfer and transit passengers are counted twice. Transit passengers are defined as air travellers coming from different ports of departure who stay at the airport for brief periods, usually one hour, with the intention of proceeding to their first port of destination (includes sea, air, and other transport hubs).

Innovation Cities Index

The 2thinknow Innovation Cities™ index is composed of 331 cities selected from 1,540 cities based on basic factors of health, wealth, population, and geography. The selected cities had data extracted from a city benchmarking data program on 162 indicators. Each of the benchmarking data was scored by analysts using best available qualitative analysis and quantitative statistics. (Where data were unavailable, national or state estimates were used). Data were then trend balanced against 21 global trends. The final index had a zeitgeist (analyst confidence) factor added and the score reduced to a three-factor score for cultural assets, human infrastructure, and networked markets. For city classification, these scores were competitively graded into five bands (Nexus, Hub, Node, Influencer, Upstart). The top 33 percent of Nexus and Hub (and selected Node cities of future interest) final graded scores were ranked by analysts based on trends over two to five years. A Node ranking is considered globally competitive.

International tourists

Annual international tourist arrivals for 100 cities collected by Euromonitor International. Euromonitor’s figures include travellers who pass through a city, as well as actual visitors to the city.

Intellectual property protection*

Leading business executives’ responses to the question in the World Economic Forum’s Executive Opinion Survey 2012 that asks, “How would you rate intellectual property protection, including anti-counterfeiting measures, in your country? (1=very weak; 7=very strong).” The survey covers a random sample of large and small companies in the agricultural, manufacturing, nonmanufacturing, and service sectors.

Internet access in schools*

Leading business executives’ responses to the question in the World Economic Forum’s Executive Opinion Survey 2012 that asks, “How would you rate the level of access to the Internet in schools in your country? (1=very limited; 7=extensive).” The survey covers a random sample of large and small companies in the agriculture, manufacturing, nonmanufacturing, and service sectors.

iPhone index

Working hours required to buy an iPhone 4S 16GB. Data sourced from UBS Prices and Earnings 2012.

Level of shareholder protection***

Measurement of the strength of minority shareholder protection against misuse of corporate assets by directors for their personal gain. The Strength of the Investor Protection Index is the average of indices that measure transparency of transactions, liability for self-dealing, and shareholders’ ability to sue officers and directors for misconduct. Assessment scores gathered from Doing Business 2013, The World Bank Group.

Libraries with public access

Number of libraries within each city that are open to the public divided by the total population and then multiplied by 100,000.

Licensed taxis

Number of officially licensed taxis in each city divided by the total population and then multiplied by 1,000.

Literacy and enrolment*

Measurement of a country’s ability to generate, adopt and diffuse knowledge. The World Bank’s Knowledge Economic Index is derived by averaging a country’s normalised performance scores on variables in three categories – education and human resources, the innovation system, and information and communications technology. The variables that compose education and human resources are adult literacy rate, secondary education enrolment, and tertiary education enrolment. Adult literacy rate, per UNESCO, refers to the percentage of people aged 15 and above who can, with understanding, read and write a short, simple statement on their everyday life.

Major construction activity

The count of “planned” and “under construction” buildings in the Emporis database for each city as of November 21, 2013. This includes structures such as high rise, skyscrapers, low rise, halls and stadia.

Mass transit coverage

Ratio of kilometres of mass transit track to every 100 square kilometres of the developed and developable portions of a city's land area. A city's developable land area is derived by subtracting green space and governmentally protected natural areas from total land area.

Math/science skills attainment*

Top performers' combined mean scores on the math and science components of the Program for International Student Assessment (PISA), an Organisation for Economic Co-operation and Development (OECD) assessment of 15-year-olds' academic preparedness. Top performers are defined as those students who achieved in the top two proficiency levels (Level 5 and Level 6) on the math and science portions of the test. Comparable examinations are used wherever possible to place cities not included in the OECD assessment.

Natural disaster risk

Risk of natural disasters occurring in or near a city. Counted hazards include hurricanes, droughts, earthquakes, floods, landslides, and volcanic eruptions.

Number of Global 500 headquarters

Number of Global 500 headquarters located in each city, as per the CNN Money Fortune Global 500 list.

Number of international association meetings

Number of international association meetings per city per year that take place on a regular basis and rotate between a minimum of three countries. Figures provided by members of the International Congress and Convention Association.

On-time flight departures

Average percentage of flights that departed on time from each city over three months (May–July 2013).

Operational risk climate*

Quantitative assessment of the risks to business profitability in each of the countries. Assessment accounts for present conditions and expectations for the coming two years. The operational risk model considers 10 separate risk criteria: security, political stability, government effectiveness, legal and regulatory environment, macroeconomic risks, foreign trade and payment issues, labour markets, financial risks,

tax policy, and standard of local infrastructure. The model uses 66 variables, of which about one-third are quantitative. Data produced by Economist Intelligence Unit's Risk Briefing.

Percent of population with higher education

Number of people who have completed at least a university-level education divided by the total population. A university-level education is set equivalent to a bachelor's degree or higher from a US undergraduate institution.

Political environment

Measure of a nation's relationship with foreign countries, internal stability, law enforcement, limitations on personal freedom, and media censorship. Data are from the Mercer Quality of Living 2013 reports.

Productivity

Productivity is calculated by dividing the gross domestic product (GDP) in 2013 US\$ by employment in the city. Data provided by Oxford Economics.

Public park space

Proportion of a city's land area designated as public recreational and green spaces to the total land area. Excludes undeveloped rugged terrain or wilderness that is either not easily accessible or not conducive to use as public open space.

Public transport systems

Reflects the efficiency, reliability and safety of public transport networks as defined and rated by the Mercer Quality of Living 2013 reports. Cities also received additional points for each multi-modal transport system available to the public including: subway, bus/us rapid transit, taxi, light rail, tram/trolley/streetcar, commuter rail and bike share systems. Each city received a tenth of a point for the modes of transport available within the city to differentiate between the 1–10 scores awarded by Mercer. Cities that had a fully operational Bus Rapid Transit (BRT) system received 0.05 points (in addition to the tenth of a point for a public bus system). Ferry systems were excluded to not penalise land-locked cities for their absence.

Purchasing power

Domestic purchasing power is measured by an index of net hourly wages (where New York=100) excluding rent prices. Net hourly wages divided by the cost of the entire basket of goods and services, excluding rent. The basket of goods relates to 122 goods and services. Data sourced from UBS Prices and Earnings 2012.

Quality of living

Score based on more than 30 factors across five categories: sociopolitical stability, healthcare, culture and natural environment, education, and infrastructure. Each city receives a rating of either acceptable, tolerable, uncomfortable, undesirable, or intolerable for each variable. For qualitative indicators, ratings are awarded based on the Economist Intelligence Unit analysts' and city contributors' judgments. For quantitative indicators, ratings are calculated based on cities' relative performances on a number of external data points. Data produced by The Economist Intelligence Unit Livability ranking.

Rate of real GDP growth

2012–2014 gross domestic product percentage growth rate in real terms expressed in 2013 US\$. Data provided by Oxford Economics.

Recycled waste

Percentage of municipal solid waste diverted from landfill.

Resolving insolvency***

This topic identifies weaknesses in existing bankruptcy law and the main procedural and administrative bottlenecks in the bankruptcy process. Assessment scores gathered from Doing Business 2013, The World Bank Group.

Software development and multimedia

Combination of scores for each city from fDi Benchmark's Software Development Centre and Multimedia Design Centres profiles and The World Bank Knowledge Economy Index (KEI). Both fDi Benchmark indices weight a city's performance 70 percent based on the quality of the location and 30 percent based on the cost of the location. The Software index is based on an assessment of 120 quality competitiveness indicators. These indicators include availability and track record in ICT, availability of specialised skills professionals such as scientists and engineers, access to venture capital, R&D capabilities, software experts, quality of ICT infrastructure, and specialisation in software development. The Multimedia Design Centre rankings are based on an assessment of 120 quality competitiveness indicators, including the size of the location's leisure and entertainment sector, its specialisation and track record, information technology infrastructure, quality of life, and skills availability. The World Bank KEI is noted as the simple average of normalised scores of three key variables: telephone, computer, and Internet penetrations (per 1,000 people).

Thermal comfort

A thermal comfort score was created for each city by calculating the average deviation from optimal room temperature (72 degrees Fahrenheit). January, April, July, and October heat indices were calculated for each city using an online tool that integrates average high temperature and corresponding relative evening humidity during each month. A final thermal comfort score was derived by first taking the difference between a city's heat index for each month and optimal room temperature and then averaging the absolute values of these differences.

Top 100 airports

Each city receives a score based on the ranking of that city's top airport in the World's Top 100 Airports ranking, compiled by Skytrax.

Total corporate tax rate

The total tax rate measures the amount of taxes and mandatory contributions payable by the business in the second year of operation, expressed as a share of commercial profits. The total tax rate is designed to provide a comprehensive measure of the cost of all the taxes a business bears. Data provided by PwC UK from Paying Taxes 2014, taxes are accurate for year ended 31 December 2012. Some cities which were not included in the Paying Taxes 2014 study were calculated separately by our PwC local office using the TTC methodology. The Paying Taxes 2014 report can be found at <http://www.pwc.com/gx/en/paying-taxes/>.

Traffic congestion

Measure of traffic congestion and congestion policies for each city scored on the level of congestion, as well as the modernity, reliability, and efficiency of public transport. Assessment based on Mercer Quality of Living 2013 reports and adjusted using IBM Commuter Pain Index.

Workforce management risk

Ranking based on staffing risk in each city associated with recruitment, employment, restructuring, retirement, and retrenchment. Risk was assessed based on 30 factors grouped into five indicator areas: demographic risks associated with labour supply, the economy, and the society; risks related to governmental policies that help or hinder the management of people; education risk factors associated with finding qualified professionals in a given city; talent development risk factors related to the quality and availability of recruiting and training resources; and risks associated with employment practices. A lower score

indicates a lower degree of overall staffing risk. Rank scores sourced from the 2013 People Risk Index produced by Aon Hewitt.

Working age population

Proportion of a city's population aged 15–64 to the total population of the city.

World university rankings

The Times Higher Education World University Rankings 2013–2014 powered by Thomson Reuters are the only global university performance tables to judge world-class universities across all of their core missions—teaching, research, knowledge transfer, and international outlook. The top university rankings employ 13 carefully calibrated performance indicators to provide the most comprehensive and balanced comparisons available, which are trusted by students, academics, university leaders, industry, and governments.

* Country-level data

** Data based on PwC Employee Survey 2013.

*** Data based on countries' most populous city except in the case of employee regulations and ease of starting a business, which have been differentiated for US cities.

Get in touch with us

Talk to us about the future of your Swiss city. We look forward to hearing from you.



Moritz Oberli
Partner PwC Switzerland
Public Industry Leader
moritz.oberli@ch.pwc.com



Bern
Andreas Aebersold
Director PwC Switzerland
Public Finance Leader
andreas.aebersold@ch.pwc.com



Eastern Switzerland
Roland Schegg
Director, Consulting Public Switzerland
roland.schegg@ch.pwc.com



Western Switzerland
Dominique Perron
Partner, Assurance
dominique.perron@ch.pwc.com

www.pwc.ch/cities-of-opportunity