
Amsterdam

A City of Opportunity



Cities of Opportunity's research thesis – the more well-balanced a city is socially, economically and environmentally, the better it will fare for businesses, residents and visitors

Amsterdam is a healthy, sustainable and attractive city with an innovative environment and a solid foundation for the digital future, pursuing its growth potential in order to compete globally...

Amsterdam competing successfully amongst world cities

Cities around the world are facing the impact of a series of emerging megatrends like accelerating urbanisation, new technological developments, increased connectivity, demographic shifts, climate change, scarcity of natural resources and many more developments. All of these trends are driving the process of internationalisation for cities.

Cities are engines for growth and the competition amongst urban regions to attract visitors, talent, businesses and investments has increased. But so has the need for cities and regions to collaborate on global issues like climate change and public safety.

In this context it has become important for a city to understand its national, regional and global position. This enables the city and its stakeholders to set appropriate policies, develop an effective strategy and plan for actions accordingly, all aimed at the sustainable development of the city.

To provide cities with a holistic view on their competitive position against other cities around the globe PwC has developed a framework to assess a city's social, economic and environmental performance against a set of key indicators and variables. In PwC's global report, Cities of Opportunity, this model has been used to gain insight into how cities around the world are performing and what we can learn from them.

To gain insight and intelligence on the global competitive position of Amsterdam, the Amsterdam Economic Board has asked PwC to conduct a comparative assessment of the city against the 30 cities from the global Cities of Opportunity report. Each of these cities is a global or regional centre of finance, commerce and culture.

We are proud to present to you the results of this research: Amsterdam – A City of Opportunity.

We believe that today's economy and emerging trends provide Amsterdam with new possibilities and opportunities. To be able to capture these opportunities it is important to understand how urban dynamics work, where Amsterdam is currently positioned amongst other global cities and what city government officials, policy makers, the business community, academics, non-governmental organisations and citizens can do to invest in the future success of the city and the metropolitan region.

As our study shows, Amsterdam has the basic foundations in place for being a successful and well-balanced world city. However, there is also clear room for improvement to capture its full potential and the opportunities it offers. We can proudly inform you that Amsterdam performs really well in this study. The city may pride itself on some of their key achievements in the areas of health,

safety and security in the city. As well as the readiness to adopt the new age of technology and innovation and at the same time keep its historical position as gateway city. Each of these areas, and more, will be further elaborated on in this report.

We would like to take the opportunity to thank those individuals with whom we were privileged to conduct an in-depth interview and who have provided us with their valuable insights on the opportunities for the city and Metropolitan Region of Amsterdam.

We would like to address a special word of thanks to the Mayor of Amsterdam, Eberhard van der Laan, for sharing with us his views, his cooperation and enthusiasm. And a thank you to Ton Jonker, Director of the Amsterdam Economic Board, and his team who provided us with their support and guidance during this research initiative.

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*This report opens a window on the
social and economic assets of
Amsterdam – A City of Opportunity*





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Summary

Amsterdam ranks high amongst the world's most successful cities

Amsterdam finishes fourth from the top when ranked against the 30 other cities in PwC's global Cities of Opportunity report. The city's number one position in *Health, safety and security* as well as in *Sustainability and the natural environment* underlines the importance of a good living environment for citizens which is a key to success for global cities.

With regards to *Health, safety and security*, Amsterdam shows an outstanding performance of its healthcare ecosystem. They are well-balanced with a highly stable political environment and a comparatively low crime rate in the city. Looking at the city's sustainability measure, a top three score in both *Recycled waste* and *Air pollution* are also key factors for Amsterdam's future.

But it is not just the living environment that puts Amsterdam in a top position. Equally important is the city's ability to adapt to a changing world. With a top three spot for both *Technology readiness* and *City gateway* and a top five score on *Intellectual capital and innovation* the city shows clear signs that the foundations for the future are in place.

Looking at the city's readiness to capture the opportunities of new technologies, Amsterdam is a high performer across all variables. It really is a digital city of the 21st century, with a high level of internet access in schools and the good

quality of its broadband supporting a strong score on the variable for the *Digital economy*. All of this offers the opportunity for businesses to develop innovative products and services, amongst others software development and multimedia design.

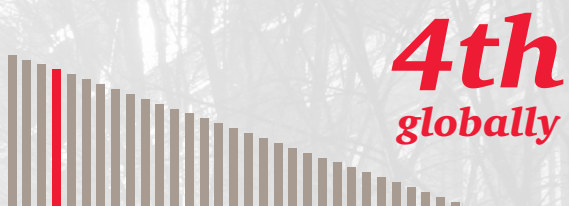
Within the *City gateway* indicator, Amsterdam scores a top three position on three variables (*Airport to Central Business District access*, *Top 100 airports* and *On time flight departures*). This shows the key role that Amsterdam Airport Schiphol plays for the city and the metropolitan area. It enables the city to attract businesses and visitors alike, shown by its fifth position on *Number of International Association Meetings*.

When we take a closer look at the *Intellectual capital and innovation* indicator, Amsterdam scores a top five ranking across half of the variables. Amongst these, the high level of education and the innovative power of the city are critical success factors for the future.

When you combine all these indicators, you start to get a clearer picture as to why Amsterdam is one of the smartest cities in the world. It is not just about technology, but even more so about a mix of smart government, businesses and citizens, interacting together in an ICT enabled community.

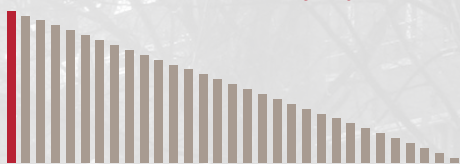


Overall result

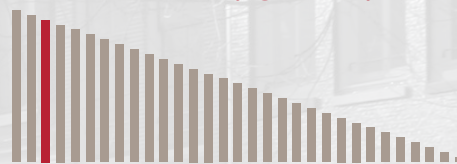


Highest scoring indicators

1st in health, safety and security



3rd in city gateway



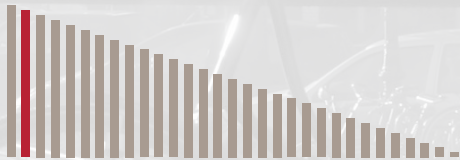
1st in sustainability and natural environment



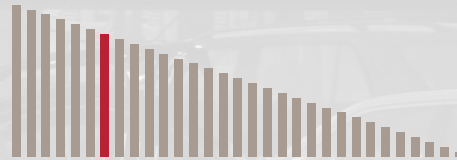
5th in intellectual capital and innovation



2nd in technology readiness

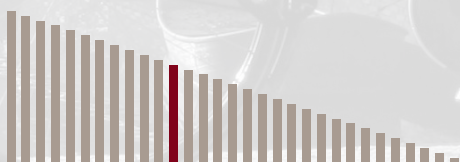


7th in cost

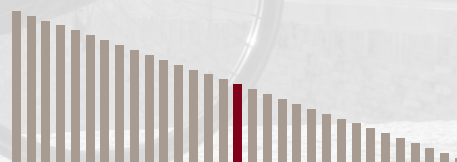


Areas for improvement

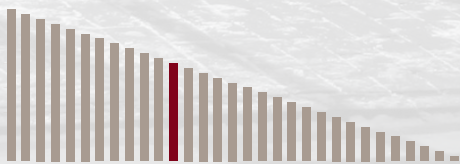
12th in demographics and livability



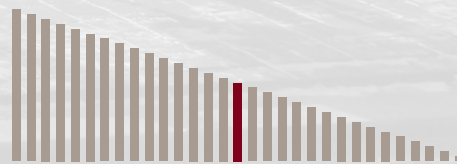
16th in transportation and infrastructure



12th in economic clout



16th in ease of doing business



Bike on Amsterdam canal bridge in wintertime

Implications from the study for Amsterdam and the Amsterdam Economic Board

- *Be proud, but not complacent*
- *Tell the story of Amsterdam*
- *Adapt a balanced approach to city development*
- *Reimagine regional collaboration*
- *Determine where Amsterdam should excel in*
- *Become a leading test bed for innovation*
- *Attract and retain talent*
- *Stay on the move and open for business*

Opportunities for improvement

City rankings and comparisons should be used as a tool for self-reflection. A comparative assessment with top cities from around the world does not only highlight the areas of strength for a city, but also where the opportunities are for improvement. Even ranked at a fourth position, Amsterdam cannot afford itself any complacency as change is happening at an accelerated pace and any leading position can easily switch to a lagging one. For Amsterdam the key areas of focus are *Demographics and livability*, *Transportation and infrastructure*, *Economic clout* and *Ease of doing business*.

Across these indicators Amsterdam scores in the middle of a highly competitive pack. But being a world-class business capital today requires an interconnected and smooth urban mobility system, an ecosystem which is easy to do business in, a comprehensive strategic investment (attraction) agenda and a well-balanced and vibrant living environment. Amsterdam should continuously improve itself to remain attractive for citizens, visitors and businesses.

The city and its stakeholders have already acknowledged some of these areas for improvement and have initiated the implementation of a series of actions which are starting to show signs of positive results, for instance in the area of cultural vitality, hotel accommodation and mobility.

Towards the future

The key to success for Amsterdam, as can be learnt from other cities, is to have in place a clear, inspiring and shared vision for the future of the city, which serves as a common purpose for all the stakeholders in the city. To achieve its strategic goals, with a balance across the various indicators or ‘capitals’, the city is putting in place an agile municipal organisation with supporting capabilities. All of which should be enabled by collaboration across all stakeholder groups in the city and the wider region, building upon the historical strengths and the present context of the city.

Amsterdam has always been an open, free, inclusive and participative democratic society, placed within a national culture with freedom of speech and respect for other points of view, which has drawn a wide diversity of people to the city. This is engraved in the city’s DNA. Historically Amsterdam is known for its mercantilism and its international entrepreneurial and innovative mentality. The influence of the Dutch East India Company as one of the world’s first multinational corporations can still be seen in the city today. The size of the city provides a close proximity of people, knowledge and ideas which supports an entrepreneurial and innovative spirit which thrives on creativity, complementarity and collaboration.

Amsterdam and the Amsterdam Economic Board (further referred to as the Board) are building upon these historical capabilities, enabling the ‘triple-helix’ collaboration between – businesses, educational institutions and governments – across the metropolitan region. This will mobilise the organising capacity of the city and put in place the preconditions for continued success in the future.

‘Our inhabitants and our businesses can be proud of this result. But this is not only a success for Amsterdam, it is a success for our entire country where people are working hard every day to strongly position the Netherlands on the world map. As a responsible capital we need to continue to position our brand for the city and the country. Therefore I would say – three to go.’

Eberhard van der Laan, Mayor of Amsterdam

‘Amsterdam has been working hard on laying the foundations for the third golden age of prosperity for the city. This result should give all of us the self confidence that we are on the right track. The report also clearly shows that there is still work to do to achieve our ambitions. But by striking the right balance in all the things we do, making the right choices on where to put our joint efforts, based on partnerships, we can achieve our goals and move from a good to a great city.’

Eberhard van der Laan, Mayor of Amsterdam



Picture from the International Space Station
by Dutch ESA astronaut André Kuipers

Amsterdam – A City of Opportunity

has been developed and assessed consistently with the overall global assessment methodology to ensure independence and comparability

About the study

Cities of Opportunity

The first edition of the global Cities of Opportunity 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 10 indicators, which jointly provide a holistic view on how successful cities thrive in sustainable urban development.

Like cities, the research itself continues to evolve and the analysis has grown from the 11 cities included in the first edition to the 30 cities covered today. The group of global cities in the study is determined by three indicators: they are capital market centres, with vibrant economies and a strong 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 trajectory are taken off the list.

The challenge of developing a city, keeping it on top and evolving with changing needs, is the dynamic we are seeking to illuminate. The hypothesis for this global research is that the more well-balanced a city is socially, economically and environmentally, the better it will fare for businesses, residents and visitors.

The measures we use are selected to develop an accurate reflection of that balanced city. This shows the connection that exists between good economic, social and environmental indicators. Among the ten 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. For example, the indicators from the 2011 global study found that health and intellectual capital correlated to a striking +87%.

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. See pages 43–46 for an overview and definitions of the variables.

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*). More variables are now stated in a way that is normalised for either land area or population than in previous editions.

Understanding the scoring: seeking transparency and simplicity

Because Cities of Opportunity is based on publicly available data supported by extensive research, three main sources were used to collect the relevant data:

- 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.
- Commercial data providers.

For the Amsterdam study data was collected during the summer of 2014. In the majority of cases, the data used in the study is from 2013.

In some cases, national data was used as a proxy for city data. This was only done in cases where consistent, highly reliable sources of publicly available city data were unavailable for all study cities. The scoring methodology was developed to ensure transparency and simplicity for readers, as well as comparability across cities. The output makes for a robust set of results and a strong foundation for analysis and discussion.

In attempting to score cities based on relative performance, we decided at the outset of our process that for maximum transparency and simplicity, we would avoid giving overly complicated weights to the 59 variables.

Consequently each one is treated with equal importance and weighted the same. For each individual variable, the 31 cities are sorted from the best to the worst performing, with each receiving a score ranging from 31 for best to 1 for worst. In ties, cities are assigned the same score. This approach makes the study easily understandable and usable by business leaders, academics, policy makers and the public alike. Once all of the 59 variables had been ranked and scored, they were placed into their 10 indicators (for example, economic clout or demographics and livability).

Within each individual indicator group, the variable scores were summed to produce an overall indicator score for that topic. Here as well, the city order from 31 to 1 is based on these scores. This produced 10 indicator league tables that display the relative performance of the study cities from best performing to worst performing.

This global comparative assessment for Amsterdam is based on the land area covered by the city of Amsterdam, not the greater Amsterdam area or the Amsterdam metropolitan region. This study provides Amsterdam the opportunity to measure its performance against a set of comparator world cities across the range of holistic indicators and variables. How does the city rank amongst its peers, which areas are they key to the cities success and in what areas does the city need to improve to continue to compete globally? These are the questions this study seeks to answer.

How Amsterdam ranks

How the cities rank¹ Overall 2014 rankings

London
New York
Singapore
Amsterdam
Toronto
San Francisco
Paris
Stockholm
Sydney
Hong Kong
Chicago
Berlin
Los Angeles
Tokyo
Seoul
Madrid
Dubai
Milan
Kuala Lumpur
Beijing
Shanghai
Moscow
Mexico City
Johannesburg
Buenos Aires
Istanbul
Sao Paulo
Rio de Janeiro
Mumbai
Jakarta
Nairobi

■ High
■ Medium
■ Low

A city of opportunity

In this special edition of Cities of Opportunity, PwC looks at a group of 31 cities (adding Amsterdam to the 30 cities included in the latest global edition) that embody the energy, opportunity and hope that draws new people to city life every day and makes urbanisation one of the most powerful megatrends of our time.

Cities in the Netherlands are also impacted by the trends that are unfolding on a global scale and need to adapt to the changing circumstances, be it global migration of people or decentralisation of public services. As the capital city of the country, Amsterdam is one of the frontrunners in adapting its city to a changing world.

To set the direction for the future of Amsterdam, the city developed the 'Structural Vision Amsterdam 2040' for the spatial planning of the city and the region. The Board developed the Amsterdam Vision 2020 and the 2025 Metropolitan Region Amsterdam Scenario's. This set the aspirational goal to become a Global Business Hub and a top five European Region by the year 2020. With this vision Amsterdam has clearly set its compass on sailing the waters of international competition amongst cities in Europe and worldwide.

To be able to achieve these goals it is important to understand where the city stands today amongst the competition and where are the city's strengths and areas for improvement are: in other words – where is the opportunity?

To gain insight and intelligence on this global competitive position of the city, we conducted the Cities of Opportunity comparative assessment for the city of Amsterdam, taking as a point of reference the city itself and not the greater metropolitan region.

Amongst the 31 global vibrant centres of finance, business and culture, the city of Amsterdam takes a very strong fourth position right at the top where they are only surpassed by London, New York and Singapore respectively, with Toronto closing the top five.

Tools for a changing world

Intellectual capital and innovation

31	London	30
30	New York	25
29	Singapore	17
28	Amsterdam	27
27	Toronto	26
26	San Francisco	29
25	Paris	31
24	Stockholm	28
23	Sydney	24
22	Hong Kong	18
21	Chicago	22
20	Berlin	19
19	Los Angeles	23
18	Tokyo	21
17	Seoul	20
16	Madrid	16
15	Dubai	12
14	Milan	15
13	Kuala Lumpur	9
12	Beijing	12
11	Shanghai	15
10	Moscow	13
9	Mexico City	10
8	Johannesburg	7
7	Buenos Aires	8
6	Istanbul	6
5	Sao Paulo	5
4	Rio de Janeiro	4
3	Mumbai	3
2	Jakarta	2
1	Nairobi	2


■ High ■ Medium ■ Low

What each of these cities 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 and natural environment
- Demographics and livability
- Transportation and infrastructure
- Economic clout
- Ease of doing business
- Cost

¹ Rankings have been recalibrated from the main 2014 global Cities of Opportunity assessment with the addition of Amsterdam. This may cause minor variations for the other 30 cities featured in the global report.

		Quality of life				Economics		
Technology readiness	City gateway	Health, safety and security	Sustainability and the natural environment	Demographics and livability	Transportation and infrastructure	Economic clout	Ease of doing business	Cost
29	31	24	17	30	25	31	27	16
27	21	21	20	21	15	30	29	22
25	28	26	14	26	31	26	31	12
30	29	31	31	20	16	20	16	25
19	12	29	25	23	30	23	28	28
24	15	24	26	29	10	25	25	27
17	24	22	28	25	29	28	18	7
31	11	30	30	24	25	14	22	13
18	18	28	30	31	6	18	19	19
26	26	15	10	27	18	24	30	17
22	10	26	22	22	13	16	25	30
20	17	27	27	29	23	9	17	24
23	14	18	23	17	4	16	26	31
21	27	20	12	16	22	22	20	10
28	19	14	7	9	29	19	23	21
16	25	17	21	18	26	14	14	20
15	23	16	1	19	22	10	12	27
15	8	19	19	15	12	17	11	9
12	20	11	4	13	20	12	21	23
12	30	8	10	10	11	30	11	1
10	22	13	3	14	14	27	6	4
13	13	4	24	11	19	21	7	5
5	7	11	15	5	17	7	15	11
4	10	9	6	12	2	4	13	29
9	5	12	18	8	29	2	1	8
8	16	6	8	3	3	6	9	14
7	6	7	11	4	9	8	8	3
3	2	5	14	8	7	5	5	2
7	3	3	5	1	9	11	3	6
3	4	2	2	2	5	3	4	15
1	1	1	16	8	1	1	2	18

 Highest rank in each indicator

Each city's score is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

'I would be genuinely proud of this result for the city of Amsterdam!'

Dr. Louise J. Gunning-Schepers, President of the University of Amsterdam and the Amsterdam University of Applied Sciences

'Amsterdam is a wonderful world city which, as this research confirms, competes amongst the top global cities. The ranking is very good, but we can't stand still. Successful cities are constantly on the move. In a dynamic world it is important to pursue excellence in those areas where we are currently performing good, for example, technology and innovation.'

Jos Nijhuis, President and CEO Schiphol Group

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*. In this report these themes will be used to further assess the competitive position of Amsterdam against the other 30 cities.

Similar to the other top ranked cities, Amsterdam looks to strike a good balance across the ten indicator groupings. The city performs really well in the areas of *Health, safety and security* and *Sustainability and the natural environment* where it achieves the number one spot on both indicators taking a leading position amongst the 31 global cities on quality of life.

The other areas where Amsterdam truly excels is on *Technology readiness* where the capital ranks second just behind Stockholm and scores a third place on *City Gateway* where London and Beijing are just ahead in terms of accessibility for and attractiveness to visitors.

On the third indicator that assesses the city's future readiness under *Tools for a changing world*, *Intellectual capital and innovation*, Amsterdam closes the top five. The high score for Amsterdam across these indicators shows that the city has a strong competitive position looking towards the future.

Lessons to be learned

Besides key strengths, the Cities of Opportunity comparative assessment also gives insight in those areas where the city could improve its performance and has the opportunity to learn lessons

from its peer cities. Besides maintaining its leading position on the indicators above, Amsterdam has room for improvement on its competitive position across a range of indicators where the city falls out of the top ten and sits in the middle of the pack.

In the rankings on *Demographics and Livability* and *Economic clout*, Amsterdam ends just outside the top ten – at twelfth position. *Transportation and infrastructure* and *Ease of doing business* would clearly also be areas of focus as the city scores an average ranking across the variables included of 16.

To round off the assessment of the indicators we look at another key factor which determines the attractiveness of a city, which is *Cost*. Amsterdam takes seventh position in the ranking here but could perform even better if the *Cost of living* in the city would decrease.

European urban areas

If we now step down from a global to a European perspective, Amsterdam is second after the historic European powerhouse city of London. Paris and Stockholm follow closely with Berlin being the fifth Northern European city at the top.

Madrid, Milan, Moscow and Istanbul each have their individual strengths, but show less balance and end up in the bottom half of our European Cities of Opportunity.

Madrid as a European logistical hub finishes third on *City Gateway* but the rest of the top five positions amongst *Tools for a changing world* are all taken by Amsterdam's Northern European peers.

Looking at the *Quality of life* within European cities, we see a similar picture where again only Madrid is able to make it to a top three position, for *Transportation and infrastructure*. This is also the only indicator in which Amsterdam is unable to score a ranking amongst the leading five cities.

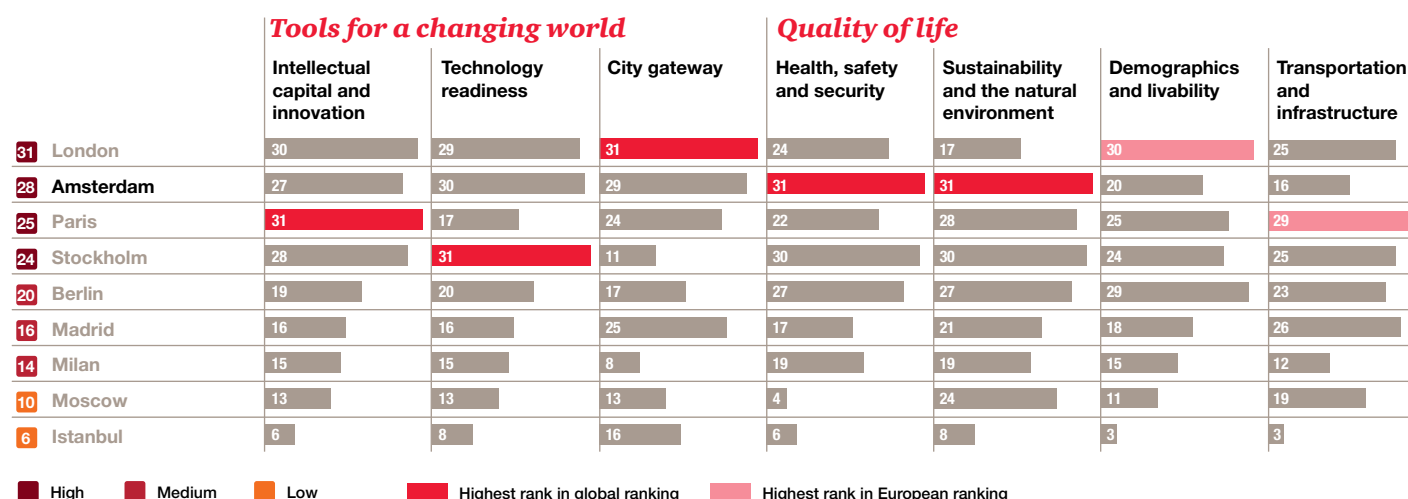
Finally when we look at the *Economics* side of these European cities we start to get a more mixed picture. Moscow and Milan enter the top five for *Economic clout*, at third and fifth spot respectively. And within the *Cost* indicator Madrid and Istanbul make it to the top grouping.

The case of the European cities underlines the earlier statement from Cities of Opportunity – the more well-balanced a city is socially, economically and environmentally, the better it will fare for businesses, residents and visitors.

DNA of Amsterdam

As mentioned earlier, it is important for a city to know where it wants to go based on the city's vision, 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 PwC² 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.

European Cities of Opportunity



² iUrban – Innovative city strategies for delivering sustainable competitiveness, PwC, 2014 and Making it happen, PwC, 2011



‘The city of Amsterdam is a heritage spot for the world and should be open for everyone to visit. The challenges Amsterdam is facing are the relatively high cost of hotel accommodation and the lack of an integrated approach for improving the urban mobility infrastructure for all modes of transport. When we reach the capacity limits of the city, out of the box solutions should be considered, such as creating a car free city centre in Amsterdam, which will be the case in the future anyway.’

Hans Bakker, CEO Amsterdam RAI Convention centre

‘Developing the city of Amsterdam is a continuous process. We will have to do this together, through a bottom-up approach, using events as a catalyst for growth and developing the narrative for the future of Amsterdam.’

Prof. dr. Zef Hemel, Professor Urban and Regional Planning, Wibaut Chair, University of Amsterdam

Row of canal houses

Historically, Amsterdam has always been a city to which open-minded people are drawn and has evolved into an open, free and inclusive democratic society. This diversity within the population of the city is one of its key assets, which, placed within a city much smaller than New York and London, enables a close proximity of people, knowledge and ideas driving the city’s entrepreneurial and innovative spirit. The city thrives on creativity, complementarity and collaboration.

London First, Partnership for New York City and the Singapore Economic Development Board are examples of successful city level stakeholder collaboration efforts across the top three cities. Within Amsterdam the collaborative initiatives are channelled through the Board, which enables ‘triple-helix’ cooperation between businesses, educational institutions

and governments across the metropolitan region. From the other successful cities we can learn that putting such an organisation in place is a precondition for continued success.

Besides the collaborative power of the city we also referred to the agile city government organisation which is needed to enable the growth and development of the city.

The city of Amsterdam has taken significant steps in this space as it is currently going through a large transformation of their government organisation and culture to become more agile and adaptive in the way public services are provided to citizens, businesses and visitors. In this way the city internally is also positioned to adapt to the trends and changes in society and is able to seize the opportunity space now and in the future.

Economics

Economic clout	Ease of doing business	Cost
31	27	16
20	16	25
28	18	7
14	22	13
9	17	24
14	14	20
17	11	9
21	7	5
6	9	14

Each city’s score is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

‘This ranking shows that the perfect breeding ground for innovation is about balance. Entrepreneurs want to connect, work and live in a city that combines a thriving business climate with comfortable living and a high quality of arts and cultural facilities. Therefore I am proud to see that Amsterdam ranks this high.’

Kajsa Ollongren, Alderperson Economic Affairs, City of Amsterdam

Tools for a changing world

Cities are faced with an ever changing world. Their success depends on the ability to adapt themselves to the changing needs of society.

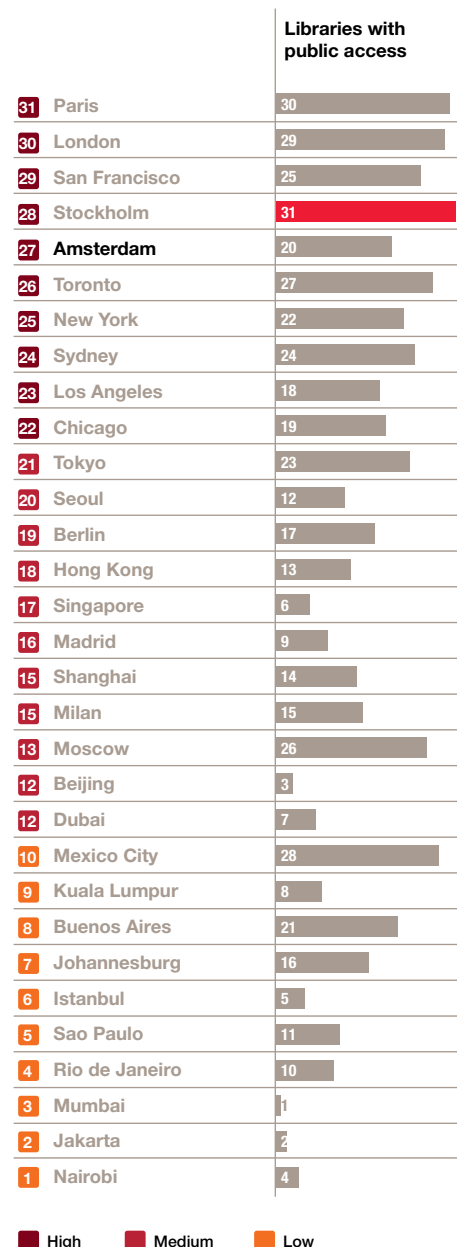
We aim to assess the city’s future readiness through the use of three indicator groupings: Intellectual capital and innovation, Technology readiness and City Gateway.

Intellectual capital and innovation

In today’s knowledge driven economy, one of the key success factors for a city is the ability to attract and develop talent and intellectual capital. This enables cities to generate innovation, which in turn serves as the backbone to the city’s economic, social and environmental growth.

Cities with long-standing institutional networks, where they are both locally and globally dominant, tend to be extremely difficult to compete with on intellectual capital. Amsterdam is one of those global cities which has a strong established network of educational institutions which continue to have the power to develop and attract a highly educated workforce. In turn, this enables the innovative strength and entrepreneurial spirit of the city.

With a top five position in *Intellectual capital and innovation* Amsterdam confirms that it has a key asset that positions it well for future competitiveness. The city scores consistently highly across each of the underlying variables, some of which are measured on a country level.



Areas for potential improvement for Amsterdam, where the current rankings are relatively lower, include *Libraries with public access* and the *World university rankings* for the city’s educational institutions. Looking at the Times Higher Education World University Rankings 2013–14, the University of Amsterdam ranks 83rd and the VU University Amsterdam sits at the 144th position. Both of the city’s universities are well established institutions and continue to show an upward trend on this ranking over the past couple of years. Although not included in the measures presented, the 2014–15 rankings show a 77th and 136th rank respectively.

What the ranking does not show is the impact of collaboration between the various educational institutions within the city.

Math/Science skills attainment*	Literacy and enrollment*	Percent of population with higher education	World university rankings	Innovation Cities Index	Intellectual property protection*	Entrepreneurial environment*	Score
20	20	29	29	29	28	23	208
21	17	28	31	28	29	21	204
17	26	30	22	30	19	31	200
11	29	31	21	22	25	27	197
25	27	27	14	27	30	24	194
24	22	26	19	26	24	25	193
17	23	25	23	31	19	30	190
22	31	14	25	21	22	26	185
17	24	22	30	25	19	29	184
17	25	24	26	18	19	28	176
27	21	21	24	19	23	17	175
28	30	17	27	20	14	16	164
23	19	18	15	24	27	20	163
29	15	10	28	23	26	16	160
30	8	19	18	16	31	23	151
19	28	15	12	8	13	18	122
31	5	16	13	17	12	10	118
18	18	12	16	14	9	16	118
12	16	23	11	11	2	6	107
26	5	9	20	13	12	10	98
9	13	11	4	15	20	19	98
6	9	20	8	9	5	10	95
7	10	8	4	12	15	11	75
3	14	13	7	5	1	10	74
1	7	2	9	4	21	12	72
10	6	4	17	10	4	13	69
5	12	6	10	6	7	4	61
5	12	7	6	3	7	5	55
8	2	3	4	7	8	2	35
2	3	5	4	1	10	3	30
13	1	1	5	2	3	1	30

 Highest rank in each indicator *country-level data


Each city's score (here 208 to 30) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

‘Amsterdam being number four in this ranking is phenomenal. What will we do to maintain this leading position? In my view we need to take an interdisciplinary approach to the further development of the city, make clear choices on where to put our focus, stand out from the crowd and strive for international excellence across these areas attracting the key talents, including in the educational and cultural sector.’

Jan Raes, Managing director of the Royal Concertgebouw Orchestra

‘The success for Amsterdam can be found in the size of its community and physical proximity. This enables collaboration in a complementary way driven by each stakeholder pursuing their own goals which jointly build the success for the city.’

Dr. Louise J. Gunning-Schepers, President of the University of Amsterdam and the Amsterdam University of Applied Sciences



The Central Public Library Amsterdam on the Oosterdokseiland, with a surface of 28,000 square metres, is the largest library in the Netherlands.
Photo: Annetje van Praag Sigaar.

'Public private partnerships are unique vehicles for Amsterdam Airport Schiphol and the city of Amsterdam to develop global competitiveness. ASK and Schiphol Smartgate are good examples of such partnerships. To achieve the city's ambitions, government and all stakeholders should continuously evolve, be decisive, push boundaries, exceed expectations, innovate and continue to be pioneers.'

Jos Nijhuis, President and CEO Schiphol Group

One of the ways Amsterdam is capitalising on its strong overall position in *Intellectual capital and innovation* is by utilising collaborative power to drive growth in the city's *Economic clout* indicator through mobilising the intellectual clout in the 'Innovation Exchange Amsterdam' (IXA) initiative.

The IXA is an initiative launched by five Amsterdam based knowledge institutions – the VU University Amsterdam, VU University Medical Centre Amsterdam, the Academic Medical Centre, the University of Amsterdam and the Amsterdam University of Applied Sciences (HvA). These five institutions have pulled together their individual Technology Transfer Offices into one

organisation aimed at establishing a new valorisation centre, which aims to transfer research and technology into economic value.

The collaboration between these knowledge institutions in this new centre of expertise is focused on supporting the Amsterdam research community in transferring their ideas, research results and innovations into concrete applications or services. This is done by facilitating the researchers in their collaboration with other parties like companies, non-governmental organisations and investors. The latter can assist to turn the ideas into clear business plans and profitable products or services, generating scientific results and adding social and economic value.

Looking at the *Innovation Cities Index*, Amsterdam currently ranks fifth amongst the 31 cities included in this study, which is based on the city's position in the 2thinknow Innovation Cities™ index.

However, the city is showing a downward trend as it came from third position in this index in 2010, compared to New York, Paris and London which have shown an upward or stabilising trend in the index. What this shows us is that it not just the effort of getting to the top, but even more so the effort to stay at the top which drives for success.

Technology readiness

With technology being the key enabler for future innovation and development in our assessment, Amsterdam, ranking second just after Stockholm, is well positioned to capture the opportunity as a true digital city of the 21st century. With a place in the top seven for all variables Amsterdam is a high performer across the board on *Internet access in schools*, *Broadband quality score*, *Digital economy score* and *Software development and multimedia design*.

Amsterdam has also truly embraced the opportunity offered by the position it has established within the technology space. The city is not only a logistical hub but also a technology hub as it sits on the world's largest internet exchange. Amsterdam Internet Exchange (AMS-IX), established in the early 1990s, interconnects hundreds of networks which provides a world class platform for service development.

The city government itself has also embraced this position and appointed a Chief Technology Officer (CTO) for the city. This is common in the United States, but unique for the Netherlands. The CTO, not to be confused with the Chief Information Officer (CIO), will be responsible for looking at how Amsterdam as a city and not as the governmental organisation, can embrace technological innovation.

Amsterdam Smart City (ASC) is another example of how technology has been embraced by the city. ASC is an innovation platform within the Amsterdam metropolitan region which aims to challenge companies, citizens, municipalities and knowledge institutions to develop innovative solutions for Amsterdam's larger urban development challenges, like for instance urban safety. ASC won the World Smart City Award in 2012, making it one of the leading Smart City initiatives in the world.

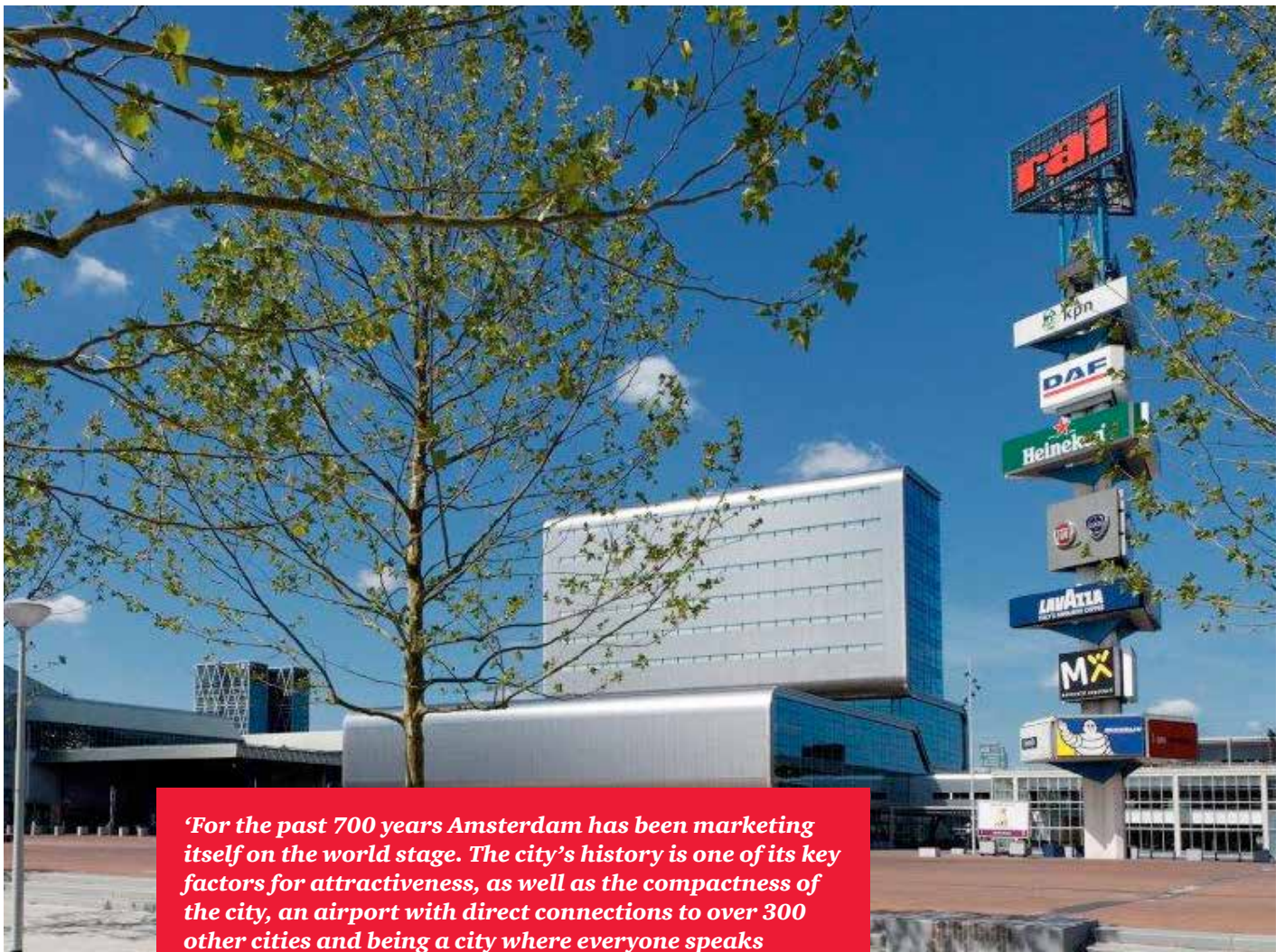
Amsterdam Metropolitan Solutions (AMS) is one of the latest initiatives by the city to realise an internationally leading institute focused on applied technology. It is built by a consortium of public and private partners. AMS aims to attract and retain talent in the field of applied technology, create sustainable connections, drive a positive economic impact for Amsterdam by innovating, developing and marketing metropolitan solutions in urban themes such as water, energy, waste, food, data and mobility.

All these initiatives contribute to the attractiveness of the city and enable social and economic growth. However, as today's technological innovation goes faster than any developments before, the biggest challenge is to stay ahead of the curve. A top ranking in this indicator should therefore not mean that success is guaranteed. Constant development, investment and innovation is needed to maintain this top position.

	Internet access in schools*	Broadband quality score	Digital economy score*	Software development and multi-media design	Score
31 Stockholm	27	28	31	27	113
30 Amsterdam	31	25	26	29	111
29 London	28	30	20	31	109
28 Seoul	29	31	21	24	105
27 New York	22	21	30	30	103
26 Hong Kong	24	29	25	24	102
25 Singapore	30	11	25	28	94
24 San Francisco	22	16	30	25	93
23 Los Angeles	22	19	30	20	91
22 Chicago	22	14	30	19	85
21 Tokyo	15	22	19	27	83
20 Berlin	14	27	18	22	81
19 Toronto	25	15	22	14	76
18 Sydney	26	17	23	9	75
17 Paris	11	23	17	22	73
16 Madrid	13	24	16	10	63
15 Dubai	23	3	14	17	57
15 Milan	5	26	15	11	57
13 Moscow	9	20	2	19	50
12 Beijing	18	10	5	16	49
12 Kuala Lumpur	16	12	13	8	49
10 Shanghai	18	10	5	12	45
9 Buenos Aires	4	18	7	14	43
8 Istanbul	10	7	8	7	32
7 Mumbai	8	13	3	6	30
7 Sao Paulo	3	2	10	15	30
5 Mexico City	7	6	11	5	29
4 Johannesburg	1	8	12	3	24
3 Jakarta	12	5	1	3	21
2 Rio de Janeiro	3	4	10	4	21
1 Nairobi	6	1	6	1	14

High Medium Low Highest rank in each indicator *country-level data

Each city's score (here 113 to 14) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).



'For the past 700 years Amsterdam has been marketing itself on the world stage. The city's history is one of its key factors for attractiveness, as well as the compactness of the city, an airport with direct connections to over 300 other cities and being a city where everyone speaks English. We should continue to exploit these strengths.'

Hans Bakker, CEO Amsterdam RAI Convention centre

Amsterdam RAI Convention centre

City gateway

As a major international travel hub Amsterdam is a true city gateway, not just for Europe but for the world. Through the position of Schiphol airport and the city's ability to attract a strong score on *Number of International Association Meetings* and *International tourists* Amsterdam ranks 3rd on this indicator, just behind London and Beijing.

That Schiphol is at the heart of the city is shown by the fact that only Dubai scores higher on *Airport to Central Business District access*.

Schiphol does not only provide efficient access to the city through a network of direct train connections, buses and taxis. It also connects Amsterdam by train directly to the other main cities in the Netherlands and other major European cities.

The area which needs attention is the way that the city is able to accommodate all the visitors and continue to attract tourists to the city and the metropolitan region. In both areas the city has made clear moves to improve its position over the past year.

To manage the balance between visitors and inhabitants, the city is aiming to host more tourists across the wider metropolitan region, which further enhances the cultural assets for Amsterdam and the surrounding cities. This will also help the city attract more 'value-adding' tourists with higher spending power.

More hotel rooms have been added, with various projects currently underway to extend hotel capacity.

Most recently it was announced that the former KPN-building, also known as 'The Dam', will be turned into a conference hotel with getting close to 500 bedrooms. This initiative not only adds hotel room capacity to the city, but also pushes forward a regeneration process for the Amsterdam Sloterdijk district, which in the 1990s was a hotspot for telco- and internet companies. Another example is the development of A'DAM Tower on the northern banks of the IJ-river, scheduled to open its doors in 2016. More recently the five star Waldorf Astoria Amsterdam hotel was opened. Located in a series of monumental canal mansions at the Herengracht another high end residence has been added to the mix of accommodation in the city.

		Hotel rooms	International tourists	Number of international association meetings	Incoming/ outgoing passenger flows	Airport to CBD access	Top 100 airports	On time flight departures	Score
31	London	27	29	26	31	20	25	12	170
30	Beijing	30	22	25	26	28	27	1	159
29	Amsterdam	8	19	27	16	30	29	29	158
28	Singapore	16	30	29	15	12	31	24	157
27	Tokyo	26	11	17	29	16	26	30	155
26	Hong Kong	24	31	20	18	22	28	8	151
25	Madrid	22	16	28	14	29	16	25	150
24	Paris	25	25	31	28	20	12	6	147
23	Dubai	23	24	10	19	31	19	19	145
22	Shanghai	31	23	15	25	25	23	2	144
21	New York	29	27	9	30	18	13	14	140
20	Kuala Lumpur	11	28	19	13	25	24	13	133
19	Seoul	10	13	23	20	14	30	17	127
18	Sydney	14	9	18	12	22	21	26	122
17	Berlin	20	18	30	5	9	10	23	115
16	Istanbul	7	26	24	21	10	20	5	113
15	San Francisco	15	14	7	17	25	18	15	111
14	Los Angeles	28	21	2	24	3	9	21	108
13	Moscow	21	20	6	23	11	15	4	100
12	Toronto	17	10	13	11	9	17	22	99
11	Stockholm	4	17	22	4	17	14	18	96
10	Chicago	13	1	8	27	26	11	9	95
10	Johannesburg	1	7	4	3	27	22	31	95
8	Milan	18	6	11	7	15	9	27	93
7	Mexico City	5	12	12	9	13	9	28	88
6	Sao Paulo	19	2	16	10	5	9	16	77
5	Buenos Aires	9	15	21	2	2	9	11	69
4	Jakarta	12	5	1	22	4	9	7	60
3	Mumbai	2	8	4	8	6	9	20	57
2	Rio de Janeiro	6	3	14	6	2	9	11	51
1	Nairobi	3	4	5	1	9	9	3	34

■ High
 ■ Medium
 ■ Low
 31 Highest rank in each indicator

Each city's score (here 170 to 34) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).



‘Schiphol aims to be Europe’s Preferred Airport and we wish for Amsterdam to become Europe’s Preferred City for citizens, businesses and visitors. To achieve both goals, a modern and adequate infrastructure – roads and rails – is of utmost importance.’

Jos Nijhuis, President and CEO Schiphol Group

Tesla electric taxis at Amsterdam Airport Schiphol

‘The forward-thinking, innovative vision of the city of Amsterdam was a key driver for us to become involved in AHTI. The vision of Amsterdam is to connect initiatives that improve the health of the city and the health of its citizens. Thereby they recognise that cities are only as good, only as healthy, and only as successful as the people living in them.’

Mike Merson, Director, Duke Global Health Institute, Durham, North Carolina USA

Quality of life

People who live, work and play in a city look for the highest quality of living for themselves and their children. It is not only about the economic or educational opportunities, but even more so about the overall quality of life a city has to offer.

Through the following four indicators we look to provide a picture on the quality of life in the city: Health, safety and security, Sustainability and the natural environment, Demographics and livability and Transportation and infrastructure.

Health, safety and security

Looking at cities, the same principles can be applied as to individuals when you consider the Maslow Hierarchy of Needs³. *Health, safety and security* as an indicator addresses the basic requirements citizens need to have in place for a city to be able to move further up the hierarchy of urban development.

Amsterdam performs really well on this indicator and tops the rankings for the 31 cities when it comes to *Health, safety and security*. When you look at the underlying variables, it is striking that the city does not come out at the top on any of them, but shows a strong balance across the top ten for all of them. The highly stable political environment and a comparatively low crime rate for the city are well-balanced with the city's healthcare ecosystem variables.

One of Amsterdam's key assets is its intellectual clout and the culture of collaborative spirit. To continue to improve the quality of health and healthcare in the city, the city is combining its key assets and is setting up two initiatives which should ensure Amsterdam will remain a healthy city.

The first initiative is the Sarphati Institute, which is a 'triple-helix' collaboration between government, represented by the Amsterdam municipality and the Public Health Services Amsterdam (GGD), knowledge institutions, represented by Amsterdam Medical Center, University of Amsterdam and the VU Medical Center and the private sector. This initiative is aimed at promoting a healthy lifestyle and preventing obesity amongst the Amsterdam youth population which is one of today's lifestyle disease that we see impacting citizens in cities all across the world.

The second initiative is the Amsterdam Health & Technology Institute (AHTI). AHTI's goal is to improve the quality of healthcare in the city and make the cost for healthcare manageable. This is to be achieved through education – a master programme for technology in healthcare, applied research – focused on enabling technology in healthcare, and integrated innovation – to stimulate economic activity in this field. Also here the key to success is collaboration. Through the Amsterdam 'Living Lab' a variety of stakeholders from the private

3 The psychologist A.H. Maslow popularised the hierarchy of social evolution of human needs. See A.H. Maslow, "A Theory of Human Motivation" Psychological Review, 150(4): 1943, pp. 370–396

	Hospitals and health employment	Health system performance*	End of life care*	Crime	Political environment	Score
31 Amsterdam	30	23	29	25	29	136
30 Stockholm	30	29	21	24	31	135
29 Toronto	25	26	27	26	29	133
28 Sydney	28	21	30	27	26	132
27 Berlin	24	25	28	23	30	130
26 Chicago	31	18	27	15	23	114
26 Singapore	15	30	20	30	19	114
24 San Francisco	27	18	27	18	23	113
24 London	24	22	31	17	19	113
22 Paris	21	24	22	16	26	109
21 New York	26	18	27	14	23	108
20 Tokyo	3	31	17	29	27	107
19 Milan	17	28	16	19	24	104
18 Los Angeles	24	18	27	8	23	100
17 Madrid	18	27	15	22	17	99
16 Dubai	16	19	19	28	10	92
15 Hong Kong	7	14	18	31	17	87
14 Seoul	12	20	13	20	14	79
13 Shanghai	10	14	8	21	6	59
12 Buenos Aires	19	9	6	9	15	58
11 Kuala Lumpur	9	8	12	12	11	52
11 Mexico City	15	10	9	4	14	52
9 Johannesburg	20	1	14	2	14	51
8 Beijing	5	14	8	10	5	42
7 Sao Paulo	15	7	4	3	8	37
6 Istanbul	3	11	11	6	4	35
5 Rio de Janeiro	11	7	4	1	10	33
4 Moscow	9	4	10	7	2	32
3 Mumbai	6	3	1	13	8	31
2 Jakarta	1	5	5	11	3	25
1 Nairobi	5	2	2	5	1	15

■ High
 ■ Medium
 ■ Low
 ■ Highest rank in each indicator

*country-level data

Each city's score (here 136 to 15) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

and the public sector, including local, national and international knowledge institutions (e.g. Duke University Global Health Institute) are cooperating to improve healthcare in the city.

These are just a few initiatives which the city has initiated to continuously improve on one of the key indicators for a successful city – *Health, safety and security*.

‘The city of Amsterdam has taken this unique Sarphati Institute initiative on one hand to further improve the health of their citizens and on the other hand to strengthen the position of Amsterdam as a strong knowledge centre on new emerging epidemics in public health. I expect we will be able to develop this institute as one of the leading research centres in public health in the world.’

*Prof. dr. Arnoud Verhoeff, Manager Cluster Epidemiology and Health promotion
GGD Amsterdam*

‘The city of Amsterdam is working on an integrated transportation infrastructure plan aimed to optimise urban mobility within the city and the region. The focus will be on sustainability, channel integration, the image of public transport and the use of new technology. Amsterdam should certainly aim to learn from other cities like London and Copenhagen.’

Alexandra van Huffelen, CEO GVB – Public Transport for Amsterdam

	Natural disaster risk	Thermal comfort	Recycled waste	Air pollution	Public park space	Score
31 Amsterdam	27	15	30	29	26	127
30 Stockholm	30	7	29	26	31	123
30 Sydney	16	28	25	31	23	123
28 Paris	25	17	28	18	30	118
27 Berlin	29	11	31	24	22	117
26 San Francisco	9	25	26	28	25	113
25 Toronto	29	8	22	30	19	108
24 Moscow	31	6	19	13	29	98
23 Los Angeles	2	29	24	22	20	97
22 Chicago	25	9	20	28	14	96
21 Madrid	26	20	8	21	17	92
20 New York	16	13	10	23	28	90
19 Milan	22	16	18	11	18	85
18 Buenos Aires	16	24	11	17	15	83
17 London	21	18	16	19	6	80
16 Nairobi	9	30	3	7	27	76
15 Mexico City	5	31	12	11	13	72
14 Rio de Janeiro	16	23	2	6	24	71
14 Singapore	21	4	15	21	10	71
12 Tokyo	1	22	13	25	9	70
11 Sao Paulo	21	26	1	16	3	67
10 Beijing	23	10	7	2	21	63
10 Hong Kong	3	20	21	15	4	63
8 Istanbul	21	22	6	11	2	62
7 Seoul	6	12	27	4	12	61
6 Johannesburg	10	28	5	8	7	58
5 Mumbai	16	6	23	1	11	57
4 Kuala Lumpur	21	1	9	15	8	54
3 Shanghai	7	14	17	3	5	46
2 Jakarta	5	2	14	5	16	42
1 Dubai	16	3	4	13	1	37

High Medium Low Highest rank in each indicator

Each city's score (here 127 to 37) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

Sustainability and the natural environment

Amongst the 31 Cities of Opportunity Amsterdam comes out at the top on environmental sustainability for cities. Similar to *Health, safety and security* the city does not top any of the individual variables, but shows a strong balance across the *Sustainability and the natural environment* indicator.

With an environmentally conscious population that is world-famous for using bicycles, Amsterdam ranks amongst the top three cities in both *Recycled waste* and *Air pollution*, which are key factors for Amsterdam's top position. Through the municipal waste and energy company (AEB), 99%⁴ of the municipal waste is recycled and reused in new raw materials as well as turned into sustainable electricity and city heating.

The AEB is not the only partner for the city which supports the city in achieving its sustainability targets. A wide range of stakeholders operating within the city also have their individual sustainability targets. Amsterdam Airport Schiphol for instance aims to be the most sustainable airport worldwide and recently won a 2014 Airports Going Green Award. The city's harbour has also set clear targets to become a sustainable port as well as the Amsterdam RAI, the city's largest convention facility, which has set clear 'green' ambitions with their credo – 'Creating a great environment to meet'. Through their policies, the Amsterdam RAI achieved their target of 100% waste recycling and reduced their general waste production by 30%.⁵

The *Air pollution* variable shows that global rankings should not be taken out of their local context. Even when the city ranks third globally on this indicator amongst the other 30 cities, air pollution is the number three health risk in Amsterdam.⁶ The city should therefore continue its efforts to reduce pollution through innovative solutions and partnerships.

Besides the waste recycling and air pollution reduction initiatives, Amsterdam should cherish the city's green and *Public park space*. Today, citizens, visitors and businesses alike are attracted to green and sustainable cities as they provide a high quality living environment.

Woman with children on a 'bakfiets' (tricycle)



4 website Amsterdam Energy Company, www.aebamsterdam.com

5 website RAI Convention centre, Amsterdam RAI achieves 100% waste recycling, www.rai.nl/en/amsterdam-rai/News-Press/nieuws/Pages/Zesde-RAI-Duurzaamheidsverslag-gepresenteerd

6 website city of Amsterdam, clean air for Amsterdam, www.amsterdam.nl/parkeren-verkeer/luchtkwaliteit/



Oudezijds Voorburgwal Amsterdam

'I am proud of Amsterdam and the city should pride itself on its distinctive DNA with freedom of religion and spirit of trade. To compete as a global metropole Amsterdam should first and foremost be a liveable city, with a distinctive offering to its inhabitants, visitors and businesses. To achieve this we should exchange more knowledge within and across cities in the region, nationally and globally'

Cathelijne Broers, Director at De Nieuwe Kerk and Hermitage Amsterdam

Demographics and livability

The variable *Cultural vibrancy* is based on data which has not yet taken into account the cultural buzz which Amsterdam generated during the years 2013–14 when the city held its jubilee celebration of some incredible milestones like the 400th anniversary of the Amsterdam Canal Ring, the opening of the renovated Rijksmuseum, the 125th jubilee of the Royal Concertgebouw Orchestra, 175 years of Artis Royal Zoo and the reopening of Stedelijk Museum Amsterdam. The year was full of exciting events and has boosted the city's cultural awareness, which can enhance its standing in future assessments.

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.⁷ This statement is supported by the World Cities Culture Forum, a major new global initiative on culture and the future of cities. Initiated in 2012, this collaborative network of

world cities shares the belief on the importance of culture for creating thriving cities. In 2014 Amsterdam hosted the World Cities Culture Summit, 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 contribution of arts to the world and city economies but also its essential role in the success of society in the 21st century.⁸ This underlines the importance of cultural assets in a city to create attractiveness.

With the upgrade of the cultural sector through the renovation of some of the world renowned museums and its established artistic climate, Amsterdam now is reclaiming its leading position in this field. To capitalise on this cultural upgrade the city should ensure that all other facilities within the city and the region are supportive to this position. For example, the amount and quality of hotel rooms should be aligned to the increase of people visiting the city.

Culture however is only one element of a livable city. Looking at the *Quality of living* for Amsterdam it rates well in the top 10, joined by three other Northern European capitals (Stockholm, Paris and Berlin). Similar to these cities Amsterdam is facing a challenge around the *Working age population* (defined as portion of a city's population aged 15–64 to the total population). This shows the importance for Amsterdam of attracting young talents to their city and engaging seniors more actively in the labour process.

Finally, as part of the livability, we also looked at the mobility of the city and specifically at *Traffic congestion*. Here Amsterdam ties with Rio de Janeiro and Hong Kong for the 16th spot. The city and the region have their challenges based on historical developments, but to maintain a thriving city it is critical not to grind to a stand-still. As we will see, initiatives are underway to improve in this area, but the challenge for the city will be to strike a balance between all modes of mobility within the city and the region, including rail, cars and bicycles.

⁷ The European Spallation Source in Lund - its effects on regional developments (p13), PwC Sweden, 2009

⁸ Keynote speech by Dr. Benjamin Barber, author of the book 'If Mayors Rule the World', World Cities Culture Summit, 2014



	Cultural vibrancy	Quality of living	Working age population	Traffic congestion	Ease of commute	Relocation attractiveness	Score
31 Sydney	25	30	5	30	28	29	147
30 London	30	17	18	27	22	31	145
29 Berlin	28	26	13	24	30	19	140
29 San Francisco	24	19	27	13	29	28	140
27 Hong Kong	22	24	26	16	26	24	138
26 Singapore	15	19	24	31	23	25	137
25 Paris	29	28	17	18	13	27	132
24 Stockholm	17	29	6	30	31	16	129
23 Toronto	18	31	16	19	19	23	126
22 Chicago	21	23	11	20	27	21	123
21 New York	31	16	8	13	24	30	122
20 Amsterdam	20	25	20	16	20	17	118
19 Dubai	6	11	30	24	25	15	111
18 Madrid	11	21	3	26	21	22	104
17 Los Angeles	27	22	12	9	4	26	100
16 Tokyo	26	27	4	13	9	20	99
15 Milan	20	20	1	17	18	18	94
14 Shanghai	7	9	29	13	16	12	86
13 Kuala Lumpur	6	10	22	24	12	8	82
12 Johannesburg	9	8	19	28	7	9	80
11 Moscow	14	13	25	7	15	4	78
10 Beijing	4	12	31	6	11	7	71
9 Seoul	9	15	10	6	17	10	67
8 Buenos Aires	11	14	2	25	1	13	66
8 Nairobi	2	1	23	24	14	2	66
8 Rio de Janeiro	14	8	9	16	5	14	66
5 Mexico City	17	5	28	1	8	5	64
4 Sao Paulo	23	8	15	2	6	6	60
3 Istanbul	14	4	14	6	10	11	59
2 Jakarta	3	2	21	6	3	1	36
1 Mumbai	1	3	7	9	2	3	25

■ High
 ■ Medium
 ■ Low
 Highest rank in each indicator

Each city's score (here 147 to 25) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).



‘Culture is the ambassador for economic growth. This sector has recently gone through an upgrade, but the rest of the city stayed behind. An integrated vision and approach is needed to get all stakeholders aligned and to jointly move Amsterdam to a higher level of quality, from hotels to city transportation to public servants.’

Roberto Payer, General Manager Waldorf Astoria Amsterdam

President Barack Obama of the United States of America and General Director of the Rijksmuseum, Wim Pijbes in front of the famous ‘Nachtwacht’ painting. Photo: Erik Smits.

Transportation and infrastructure

One of the clear challenges for Amsterdam is its urban transportation and infrastructure development. The city reaches its lowest score across all indicators on *Transportation and infrastructure*, at 16th place. And when compared to the other Northern European cities in this assessment, Amsterdam scores far below its peers.

One of the key issues is the *Cost of public transport*. In Amsterdam, city government only has limited influence over the cost for public transport as prices are set on a national level. The introduction of the national Public Transport (OV) chipcard is not helping in making things more cost efficient for the user, if anything it has complicated things for visitors who need to buy expensive day passes. Initiatives are being developed to address this issue. For instance, Amsterdam has introduced the iCard which can be used for transport and access to museums. To become truly successful this card should

expand its reach into the region. Similar initiatives are being developed by Schiphol together with the National Railway organisation. Other ways to compete on city’s public transport are through excellent quality and efficiency of the public transport system.

Another measure to determine if a city is on the move is *Major construction activity*. Here Amsterdam ranks virtually at the bottom together with Nairobi and Johannesburg. From our interviews it is clear that there is a need for investment in infrastructure projects to connect key parts of the city. Schiphol shows that continuous investment in this area is needed as for the next three years the airport will invest 1.5 million euros per day in expanding infrastructure capacity to meet continued growth in demand. For the city it is important to link this indicator to the *Attracting FDI* variable and see what funds could be attracted to support infrastructure development.

The North-South metro line is one of the infrastructure megaprojects which is underway within the city today. It is a highly debated project, but necessary for the sustainability of the urban transport system in Amsterdam and to connect one of the new and upcoming areas of the city, divided by the river, the IJ, to the city centre. As challenging as this project has been, this is not the end for Amsterdam, rather a starting point as further connectivity needs to be established, for instance, a connection to Schiphol and to the wider metropolitan region.

The quality of *Public transport system* and *Housing* in Amsterdam also falls outside the top ten of indicators and is clearly an area which needs to be improved compared to the top ten cities. Combining Licensed taxis and sustainability, Amsterdam Airport Schiphol has introduced 167 electric Tesla-taxis to the mix of urban transport, which is a pioneering initiative and one that is brand defining for the city. The city and other stakeholders can use this as an example to further ‘green’ mobility in Amsterdam.

	Public transport systems	Mass transit coverage	Cost of public transport	Licensed taxis	Major construction activity	Housing	Score
31 Singapore	29	21	15	22	26	31	144
30 Toronto	31	20	7	7	28	29	122
29 Buenos Aires	18	17	30	30	15	9	119
29 Paris	29	31	10	28	4	17	119
29 Seoul	25	23	23	26	9	13	119
26 Madrid	21	26	13	24	14	18	116
25 London	31	16	1	14	29	24	115
25 Stockholm	29	28	3	27	6	22	115
23 Berlin	29	27	5	9	11	29	110
22 Dubai	12	4	16	20	31	25	108
22 Tokyo	25	11	17	23	13	19	108
20 Kuala Lumpur	8	15	27	29	16	11	106
19 Moscow	16	22	25	15	22	3	103
18 Hong Kong	25	18	9	13	20	17	102
17 Mexico City	5	12	29	31	17	7	101
16 Amsterdam	18	30	6	21	3	21	99
15 New York	21	25	8	5	19	20	98
14 Shanghai	16	8	21	17	21	13	96
13 Chicago	25	14	11	10	12	23	95
12 Milan	16	24	13	18	5	17	93
11 Beijing	11	13	28	19	10	11	92
10 San Francisco	16	29	4	8	8	26	91
9 Mumbai	3	19	26	12	27	2	89
9 Sao Paulo	7	7	20	16	30	9	89
7 Rio de Janeiro	6	5	19	25	24	7	86
6 Sydney	19	9	2	4	18	31	83
5 Jakarta	4	3	31	11	25	7	81
4 Los Angeles	11	10	18	2	7	29	77
3 Istanbul	11	6	22	3	23	7	72
2 Johannesburg	3	3	14	6	1	17	44
1 Nairobi	1	3	24	1	2	1	32

High

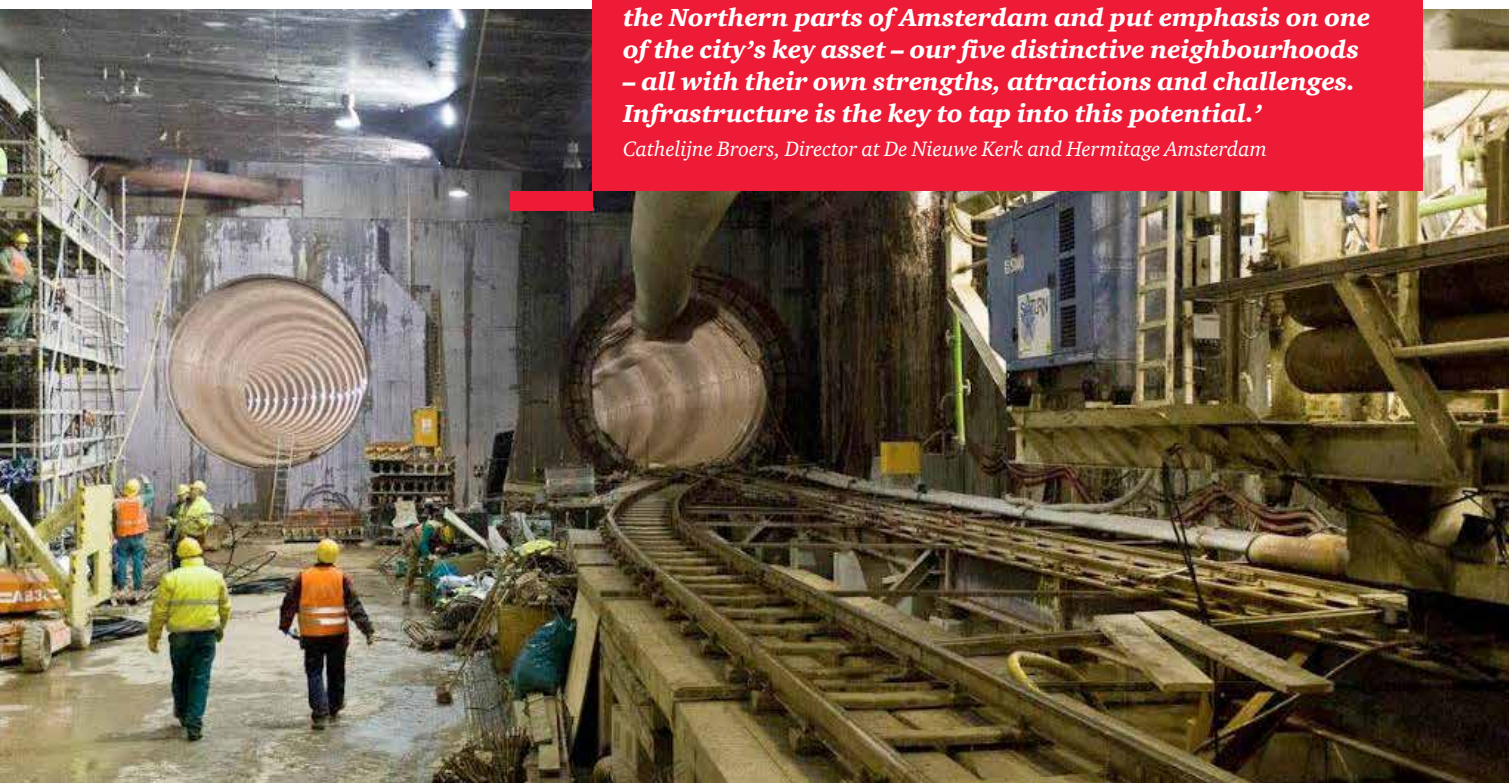
Medium

Low

Highest rank in each indicator

Each city's score (here 144 to 32) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

Construction Noord-Zuid metro line Photo: GE Dubbelman / Hollandse Hoogte



‘Amsterdam needs to increase its scale and focus on an integrated regional approach. It is critical to further unlock the Northern parts of Amsterdam and put emphasis on one of the city’s key asset – our five distinctive neighbourhoods – all with their own strengths, attractions and challenges. Infrastructure is the key to tap into this potential.’

Cathelijne Broers, Director at De Nieuwe Kerk and Hermitage Amsterdam

‘To maintain a leading global position Amsterdam should have a long term holistic view on the city’s development, integrating the views of government, citizens, students, expats, businesses and NGOs. Available resources should be channelled to position an interconnected diversified offering of culture, leisure, housing, education and public service. The city should facilitate this process through an agile government, which acts with speed based on a long term consistent approach. This will result in a stronger economic clout.’

Cathelijne Broers, Director at De Nieuwe Kerk and Hermitage Amsterdam & Jan Raes, Managing director of the Royal Concertgebouw Orchestra

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 and not least businesses and investments. This has led to increased competition amongst cities on a global scale.

As a final part to our assessment we provide our insights in the Economics of a city by looking at the following three indicator dimensions: Economic clout, Ease of doing business and Cost.

Economic clout

As we have seen, Amsterdam is performing really well with a top ten position in the majority of the indicators we have looked at so far. Within *Economics*, however, for two out of three indicators Amsterdam drops out of the top ten.

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. Amsterdam ranks at a reasonable 12th place, close to leading the middle part of the ranking.

Taking a deeper look at the variables which give an indication of the historical economic power of the city, we see that Amsterdam ranks number 12 when it comes to *Number of Global 500 headquarters*, Amsterdam has four, with just one company out of the Global 500 Top 25 headquartered in the city – ING Group. Having these headquarters based in your city draws in a lot of economic activity which in turn helps to drive growth and create jobs not only in the relevant sector but also affiliated sectors.

This is underlined by the *Financial and business services employment* variable where Amsterdam ranks fourth. With its historical roots as a global financial

centre and having one of the world’s oldest stock exchanges based in the city, it shows that the financial sector is one of the key drivers for growth in the city.

And together with companies like Philips and Heineken, both Global 500 companies, this draws in many professional services firms too.

One of the areas where Amsterdam shows an average performance and could increase its activity is in *Attracting Foreign Direct Investment*. Based on the data used for this variable, which took into consideration a ten year period between 2003 and the end of 2012, Amsterdam ranks 15th. Within the Dutch context Amsterdam is performing comparatively well, but on a global level the city has room for improvement.

To continue to effectively attract Foreign Direct Investment and businesses on a global scale, where Amsterdam is competing with other world cities, the city needs a strategic investment agenda with a clear plan in place as to which businesses and investments the city wishes to attract. This should be jointly and pro-actively pursued by the city and its stakeholders and supports the wider vision and focus areas for Amsterdam.

	Number of Global 500 headquarters	Financial and business services employment	Attracting FDI	Productivity	Rate of real GDP growth	Score
31 London	27	29	30	24	13	123
30 Beijing	30	27	27	3	31	118
30 New York	28	23	22	30	15	118
28 Paris	29	26	25	27	4	111
27 Shanghai	24	12	31	11	30	108
26 Singapore	14	14	30	18	21	97
25 San Francisco	14	30	3	31	17	95
24 Hong Kong	20	13	27	16	18	94
23 Toronto	25	22	14	23	9	93
22 Tokyo	31	6	23	25	7	92
21 Moscow	24	11	25	13	16	89
20 Amsterdam	20	28	17	20	3	88
19 Seoul	26	21	15	10	14	86
18 Sydney	17	18	21	21	8	85
17 Milan	14	31	14	22	2	83
16 Chicago	14	25	2	28	11	80
16 Los Angeles	9	16	4	29	22	80
14 Madrid	21	17	21	19	1	79
14 Stockholm	17	24	6	26	6	79
12 Kuala Lumpur	9	15	14	12	27	77
11 Mumbai	24	5	19	2	26	76
10 Dubai	5	2	28	15	25	75
9 Berlin	9	20	14	17	5	65
8 Sao Paulo	20	9	18	7	10	64
7 Mexico City	17	7	8	9	20	61
6 Istanbul	9	3	16	8	24	60
5 Rio de Janeiro	14	8	10	4	23	59
4 Johannesburg	5	19	5	6	19	54
3 Jakarta	5	4	9	5	28	51
2 Buenos Aires	5	10	7	14	12	48
1 Nairobi	5	1	1	1	29	37

■ High
 ■ Medium
 ■ Low
 Highest rank in each indicator

Each city's score (here 123 to 37) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for the lowest).

Another example is a trend we see around the world that not only on a national level, but more and more so on a city and regional level international trade missions are being set up. These are increasingly led by mayors to open doors in other cities and to show how serious the city is in attracting businesses.

Finally, the *Productivity* score for Amsterdam also remains in the middle with a 12th ranking. This position is influenced by a low score for Amsterdam on the *Rate of real GDP growth*. Not surprisingly most of the Northern European cities, except for London, are at the bottom of this ranking due to the economic crisis that the continent has gone through.

Important to note here is that Amsterdam falls behind Stockholm, Berlin and Paris. It shows that historical performance does not guarantee future success and that the city needs to continue to work on its economic resilience.

In this context we have spoken about the impact of Global 500 companies. However, we should not forget the

significance of the Small- and Medium-sized Enterprises (SMEs) which are the driving force behind a city's economic growth and enable the diversification of its economy, which is a key asset for urban economic resilience. This again indicates that for Amsterdam it is important to strike the right balance.

'Amsterdam is missing the benefits of agglomeration to enable the city to develop critical mass in a global setting on, for instance, the economy and transportation. The key to success lies in creating seamless connectivity within the Amsterdam Metropolitan Region.'

Prof. dr. Zef Hemel, Professor Urban and Regional Planning, Wibaut Chair, University of Amsterdam



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 amongst the cities within this research Amsterdam has not been able to make this one of its strong assets and sits in 16th place.

As mentioned some of the elements of *Ease of doing business* are determined on a national level, for instance *Employee regulations* and *Level of shareholder protection*. For both of these variables Amsterdam is in the lower parts of the ranking. Not surprisingly on employee protection Amsterdam is joined by its Northern European peers given the generally more social approach to the position of employees.

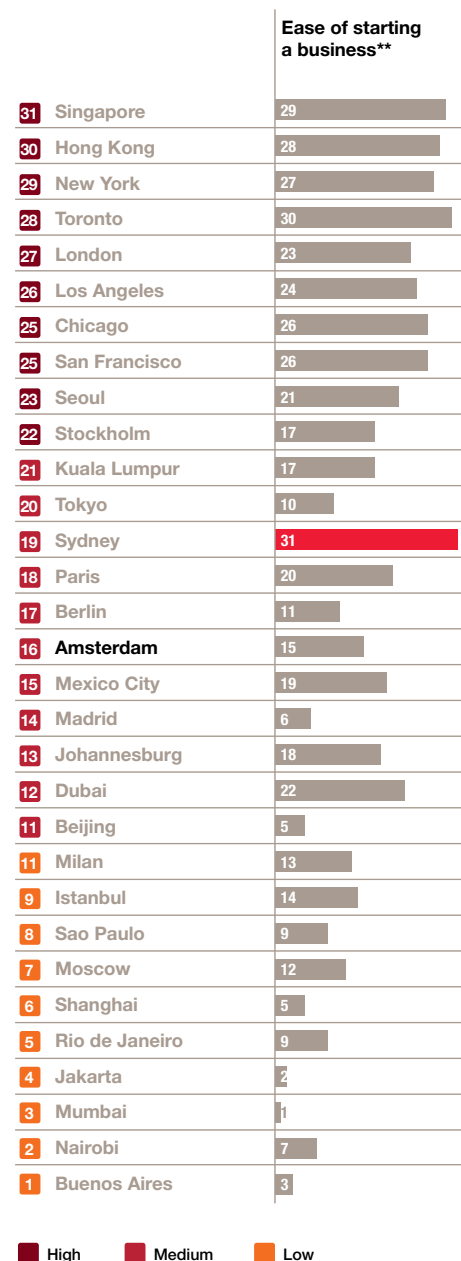
Other examples of nationally determined factors are *Resolving insolvency*, *Ease of entry with visa waiver* and *Operational risk climate*. For each of these indicators Amsterdam is within the top ten and has a competitive advantage in this space.

One indicator in which Amsterdam is towards the bottom together with Johannesburg is the variable of *Foreign embassies or consulates*. As this measure indicates the ease for foreign companies to connect with their own embassies and get support in their business activities, Amsterdam is unlikely to reach a higher level on this indicator variable given that The Hague is the country's political capital. This is similar to Johannesburg which has Pretoria and Cape Town as its political peers.

One of the areas where Amsterdam could significantly increase its competitive advantage is on *Ease of starting a business*. Currently the city is punching below its weight and ends up at 17th. This position is determined by the bureaucratic and legal hurdles an entrepreneur must overcome to register a new firm, including the number of procedures, the amount of time and the cost incurred to register a firm.

As can be seen throughout the quotes included in this report, and further insights gained from the interviews it is believed that the city government has room for improvement in providing an environment where it is easy to do business. It is perceived that there is an unnecessary administrative burden put upon businesses given the various departments that one has to deal with as a business.


As there is a significant correspondence between *Economic clout* and *Ease of doing business* this should be one of the priorities for the city to provide a well-balanced public service through which it can boost economic activity.





Amsterdam business district
Zuidas Photo: Marcus
Koppen / Hollandse Hoogte

Resolving insolvency**	Employee regulations**	Ease of entry: number of countries with visa waiver*	Foreign embassies or consulates	Level of shareholder protection**	Operational risk climate*	Workforce management risk	Score
30	27	31	18	31	31	30	227
21	25	30	14	30	30	26	204
25	31	9	25	27	24	31	199
29	16	14	15	29	27	29	189
27	1	27	30	23	19	28	178
25	30	9	11	27	24	27	177
25	29	9	7	27	24	25	172
25	28	9	9	27	24	24	172
26	18	28	22	19	15	16	165
17	11	21	24	20	30	23	163
13	22	29	21	29	16	14	161
31	14	15	29	21	18	17	155
20	15	10	13	14	28	20	151
14	9	19	31	12	24	19	148
19	6	19	26	9	25	18	133
28	12	23	2	4	26	22	132
16	26	17	16	19	11	6	130
18	17	23	23	9	17	15	128
9	14	26	1	23	12	9	112
6	24	11	3	1	15	21	103
11	20	3	29	9	10	13	100
15	3	17	9	19	13	11	100
4	9	21	12	14	6	3	83
3	5	25	10	12	8	10	82
12	10	5	27	4	4	5	79
11	20	3	5	9	10	12	75
3	5	25	4	12	8	8	74
1	21	4	19	19	3	4	73
5	23	3	6	19	5	7	69
7	9	12	17	9	2	1	64
8	2	13	20	4	1	2	53

 Highest rank in each indicator *country-level data ** based of most populous city

Each city's score (here 227 to 53) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

	Total corporate tax rate	Cost of business occupancy	Cost of living	iPhone index	Purchasing power	Score
31 Los Angeles	19	28	19	28	30	124
30 Chicago	17	26	20	30	28	121
29 Johannesburg	26	30	26	13	16	111
28 Toronto	29	21	9	25	25	109
27 San Francisco	20	17	11	28	29	105
27 Dubai	31	14	22	20	18	105
25 Amsterdam	22	25	6	22	24	99
24 Berlin	14	29	13	16	26	98
23 Kuala Lumpur	23	27	29	10	8	97
22 New York	16	12	10	31	27	96
21 Seoul	27	13	16	15	15	86
20 Madrid	9	24	12	19	20	84
19 Sydney	15	7		29	31	83
18 Nairobi	18	31	27	3	2	81
17 Hong Kong	30		16	19	14	80
16 London	24	3	5	24	22	78
15 Jakarta	25	20	30			77
14 Istanbul	21	16	25	7	7	76
13 Stockholm	11	18	2	21	21	73
12 Singapore	28	11	7	14	11	71
11 Mexico City	10	22	28	4	4	68
10 Tokyo	13	5	4	26	19	67
9 Milan	4	19	8	17	17	65
8 Buenos Aires		23	23	5	10	62
7 Paris	5	6	3	23	23	60
6 Mumbai	8	15	31	2	3	59
5 Moscow	12	4	18	11	13	58
4 Shanghai	6	9	24	9	6	54
3 Sao Paulo	3	8	17	12	12	52
2 Rio de Janeiro	2	10	14	8	9	43
1 Beijing	7	2	21	6	5	41

■ High
 ■ Medium
 ■ Low
 ■ Highest rank in each indicator

Each city's score (here 124 to 41) is the sum of its ranking across variables. The city order from 31 to 1 is based on these scores (31 for the highest to 1 for lowest).

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.

On this final indicator Amsterdam shows its competitiveness and finishes in seventh position. And looking at Europe only, Amsterdam takes the number one spot, just above Berlin and well above the rest of the European cities included in this study. This indicates that if the city could improve on its *Ease of doing business* it would be well positioned in the global competitive economic landscape.

The *Total corporate tax rate* and the *Cost of business occupancy* are clear areas where Amsterdam stands out and achieves tenth and seventh place respectively. This certainly influences the attractiveness for businesses to settle themselves here.

However, if we then look at the *Cost of living* Amsterdam scores extremely low, finding itself in the bottom six. We have seen a similar high level of *Cost for public transport* under the *Transport and infrastructure* indicator.

To remain competitive the high level of cost is a challenge the city will need to face if it wishes to continue to attract talents to the city who shape the future workforce for the businesses based here.

The good news is that this *Cost of living* is relative to inhabitants *Purchasing power* which is also measured through the *iPhone index*. Both of these put Amsterdam amongst the top ten cities in this important part of the indicator reflecting affordability. The *iPhone index* measures the amount of working hours required to buy an iPhone, which for Amsterdam on average is just over a working week.

The question often asked here is how does one measure cost? Is cheapest the best? Or is it a matter of striking a balance between wages and prices in the most efficient and productive manner? Looking at the top ten ranking on this indicator, where we see a majority of Northern American and Northern European cities which have a high cost of living, we can clearly see the latter conclusion is most probable.

This underlines the hypothesis for this research that the more well-balanced a city is socially, environmentally and in this case economically, the better it will fare for businesses, residents and visitors. Or to put it in the words of Frans van der Avert, CEO Amsterdam Marketing, 'we should aim for a livable, lovable and profitable Amsterdam'.

'In this ranking Amsterdam is clearly building on its historical strengths of merchant mentality, liberal spirit and tolerance. These continue to be traits which we should cherish and combining this with a drive that the city has had throughout the centuries to be internationally relevant, we need to continue to look forward.'

Eberhard van der Laan, Mayor of Amsterdam

'The metropolitan region of Amsterdam has a huge challenge to get ready for the future. To be a livable city for inhabitants, a lovable city for visitors and a profitable city for business. How to find a balance between these three demands is a public-private task. Government, cultural institutes, universities, shops, companies and the tourism & conventions industry have a joint responsibility to meet this challenge and to share the solutions.'

Frans van der Avert, CEO Amsterdam Marketing

Implications





To conclude, we summarise the key implications which can be taken from this study for the city of Amsterdam and the Amsterdam Economic Board (the Board). These are aimed to support the development of a shared agenda for action for the city.

The study was performed in the context of the internationalisation agenda of Amsterdam and the Board.

The aspirational goal for Amsterdam is to become a Global Business Hub and a top five European Region by the year 2020.

This vision has determined the mission for the Board – a ‘triple-helix’ approach – aimed at collaboration, innovation and growth, which is to be achieved through four focus areas or themes:

- Knowledge & Innovation
- Human Capital
- International Connectivity
- Basic preconditions (Sustainability, Livability and Business Climate)

With this in mind we see the following implications for Amsterdam – A City of Opportunity.

1. Be proud, but not complacent

Amsterdam and the Board can be proud of this ranking which is a result of the collaboration amongst the stakeholders in the Metropolitan Region Amsterdam. However, there is no time for complacency and more effort should be put on cross sector collaboration, for example, by connecting the technology sector with the transportation sector to develop smart mobility.

2. Tell the story of Amsterdam

Amsterdam should have a compelling story and tell it to its citizens, businesses and the world. The city holds a lot of key assets which enable its competitive advantage, proximity being one of them. This story should continue to be communicated to local, regional and global stakeholders. The city should develop the narrative for the future of Amsterdam. And this narrative should be told by each of the city’s ambassadors, which are not only the Mayor and the city Aldermen, but includes all key stakeholders from the directors of cultural institutions to the CEO’s of multinational and small- and medium-sized companies. Singapore would be a good example on how all stakeholders are aligned to the story of the city.

3. Adopt a balanced approach to city development

Cities of Opportunity is based on the hypothesis – the more well-balanced a city is on its social, economic and environmental scales, the better it will fare. To maintain its leading position Amsterdam should further adopt this balanced approach as a baseline for the city’s further growth. The city has initiated the programme ‘Balans in de stad’ which aims to achieve a sustainable balance in the city, with a primary focus on the balance between all those that live, work and visit the city. As argued in this report balance is essential to the success of the city. The focus of this programme in Amsterdam should be extended to the wider balance in the city across social, economic and environmental indicators. For instance, the city has a need for a further integrated and balanced urban mobility plan – public transport, cars and bikes.

4. Reimagine regional collaboration

The Board holds responsibilities in the city of Amsterdam and the wider Metropolitan Region Amsterdam, with the goal to be a top five European region by 2020. What will be the construct of future regions -regionally, nationally and internationally? For example Amsterdam sits in the middle of a very strong Northern European region, which is reflected in our study by the cities of London, Paris, Berlin and Stockholm. The city and the Board should reflect upon the circuit of cities with whom Amsterdam should seek to collaborate and who are their main competitors, now and in the future. This can be done through an issue based approach – what are our key challenges, which cities can we learn from and which ones do we compete with, for instance, on culture and leisure, examples being Berlin or Vienna.

5. Develop city intelligence

To achieve their vision and goals and the city and the Board should gather city intelligence to understand their own regional performance and gain insight in the best practices other peer cities have tested. The Board initiated the MRA dashboard which provides insight on (inter)national, regional and Board performance. Besides these performance measures Amsterdam should also gain further insight in ‘good options’ and lessons which can be learned from other cities. Continued data gathering will assist in making better informed policy decisions and action planning to drive successful implementation thereof. Being part of global comparative assessments like Cities of Opportunity is therefore essential.

6. Exploit Amsterdam’s excellence

To maintain the current position and grow further, Amsterdam needs to move from good to great across a range of indicators and strongly improve on some of the lagging positions. The city and the Board will need to make strategic choices on those areas where they want to invest and excel in. One of the starting points will be the economic clusters as prioritised by the Board. The Cities of Opportunity assessment shows the following areas where the city can move from good to great:

- the city should continue to invest in talent development and attractiveness and be a leading innovator;
- remain a front runner on technological developments;
- maintain its leading position as a gateway to Europe; and
- remain a healthy and liveable city with a strong cultural vibrancy

The city should also put effort in the following areas that need to be improved:

- the urban connectivity and ease the congestion;
- strengthen the economic clout by improving the ease of doing business, attracting start-ups and mature businesses; whilst
- remaining affordable for all.

The city will have to make strategic choices based on a true holistic and integrated vision for the future of the city. The key questions here will be: in which areas does the city truly excel, what does the city want to be known for to differentiate itself from their competition? And how do we ensure full integration of all these elements with the before mentioned key indicators for success?

7. Attract and retain talent

The key to future success lies in the ability of Amsterdam to continue to attract (inter)national talent within its region, physically, but also virtually connect them to the city. To attract today’s talent the city needs to have a balanced offer. It is not only the quality of the educational institutions or businesses located in Amsterdam. Affordable housing, cultural activities, good urban transportation and an entrepreneurial environment amongst others are the indicators which attract people to the city. An integrated approach across the different sectors is key to remain an attractive region. Universities are offering scholarships to attract top talent to the region. Have these programmes been aligned to the requirements from businesses in the region?

8. Become a leading test bed for innovation

Innovation is a driver for growth and urban development. Innovative start-ups and leading innovation businesses need an environment in

which they are enabled to be pioneers and innovate. Besides initiatives like *Startupbootcamp*, the innovation ecosystem should include an enabling market where new products and services can be tested and commercialised. By providing a platform to adopt innovation within the city itself, like utilising new technologies for a safer city, Amsterdam enables economic growth. New York and San Francisco are the well-known examples in this space, but Berlin would certainly be a city to watch.

9. Stay on the move

The city needs to stay on the move to become a greater city and don’t grind to a halt. Physical and virtual infrastructure should continuously be improved - movement delivers progress and growth. The cost of public transport is an issue in the city. But besides initiatives to lower the cost, the quality, efficiency and connectivity of the different modes of transport are key. And is there a truly integrated transport system? Should the new North-South metro line be connected to Schiphol Airport? Is the leading position of Amsterdam on technology utilised to benefit public transport, for example, are apps being developed and used to increase the efficiency and usability of the system? These are all questions the city and the Board should seek to answer and act upon together with its partners.

10. Amsterdam open for business

The comparative assessment indicates that the city needs to look at how they can lift the burden on businesses and create an environment where it is clear that it is easy to do business in Amsterdam. At the same time it is important to continue to attract businesses and foreign direct investments into the city. To do this effectively on a global scale, where Amsterdam is competing with other world cities, the city needs a strategic investment agenda which is jointly and pro-actively pursued by the city and its stakeholders and supports the wider vision and areas for excellence for Amsterdam. The approach Singapore is taking through its Economic Development Board and business account management is one of the ‘good options’ to look into.



View on 'Zuiderkerk' and in the back the 'Zuidas' business district



Bijlmer public transport station

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Appendix

Appendix A

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 measurement 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 information 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, non-manufacturing, 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, non-manufacturing, 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 Economic 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.

Appendix B

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