IESE Business School
University of Navarra

IESE Cities in Motion

IESE Cities in Motion Index

2018

IESE Business School
University of Navarra

IESE Cities in Motion

DOI: https://dx.doi.org/10.15581/018.ST-471

IESE Cities in Motion Index

2018

CONTENTS

Foreword 07

About Us 09

Working Team 09

Introduction: The Need for a Global Vision 10

Our Model: Cities in Motion. Conceptual Framework, Definitions and Indicators 11

Limitations of the Indicators 22

Geographic Coverage 22

Cities in Motion. Ranking 24

Cities in Motion. Ranking by dimension 26

Cities in Motion. Regional Ranking 38

Noteworthy Cases 42

Evolution of the Cities in Motion Index 45

Cities in Motion Compared With Other Indexes 48

Cities in Motion: City Ranking by Population 49

Cities in Motion: Analysis of Dimensions in Pairs 52

Cities in Motion: A Dynamic Analysis 55

Recommendations and Conclusions 57

Appendix 1. Indicators 60

Appendix 2. Graphical Analysis of the Profiles of 165 Cities 66

FOREWORD

Once again, we are pleased to present a new annual edition (the fifth) of our IESE Cities in Motion Index **(CIMI)**. We have observed with great satisfaction how various cities, companies and other social actors have used our study to carry out a comprehensive first diagnosis and an initial benchmarking of other major cities through comparative analysis.

From its beginnings, the **CIMI** has aimed to improve year after year, and this fifth edition is no exception. As in previous editions, we have tried to provide an index that is objective, comprehensive, wide-ranging and guided by the criteria of conceptual relevance and statistical rigor. However, this fifth edition features some different elements with respect to previous editions. The first important difference is that we have significantly increased the number of variables at the city level. This edition includes a total of 83 indicators, which reflect both objective and subjective data and offer a comprehensive view of each city. Among the new variables, we have included, for example, ISO 37120 certification indicators, the number of terrorist attacks and the number of Apple stores in each city. In addition, we have incorporated prospective variables, such as the projections of GDP per capita or forecast temperature readings resulting from climate change. We believe that this increase in the quantity and quality of the variables used allows for a more accurate assessment of the reality of the cities included in our index.

The cost of this improvement in indicators is reflected in the inclusion of a smaller number of cities compared to the previous edition. Despite this, this edition includes 165 cities – 74 of them capitals – which represent a total of 80 countries. In this regard, a second difference compared to previous editions is that 13 new cities have been incorporated, including Reykjavik (Iceland), Bern (Switzerland), Wellington (New Zealand) and San Diego (USA), among others. The breadth and scope of the **CIMI** establishes it as one of the city indexes with the widest geographical coverage available today.

The third different element of this edition is the merging of two dimensions of our conceptual model, which originally took into account 10 key dimensions: human capital, social cohesion, the economy, public management, governance, the environment, mobility and transportation, urban planning, international outreach and technology. We have merged "governance" with "public management" (in a dimension called simply "governance") for two fundamental reasons. In the first place, there is a certain overlap between both dimensions that makes it difficult to distinguish between them conceptually. Secondly, the limited number of indicators at the city level that cover these dimensions led us to merge them to ensure we have a more reliable measure. We believe that this change does not significantly affect the conclusions of the **CIMI** but rather it makes them more robust. In any case, we continue to work to obtain more and better indicators to capture these dimensions.

We see this work as a dynamic project and therefore we continue to work so that the future editions of the index will have the best indicators and give wider coverage and a growing analytical and predictive value. Your comments and suggestions are welcome, as they will enable us to improve. Therefore, we invite you to get in touch with the platform through our website: www.iese.edu/cim.

We would like to inform our readers that our efforts here at the IESE Cities in Motion platform have not been limited to just ranking cities. We have continued to publish our series of "minibooks" in English, which identify good practices in each of the dimensions of the IESE Cities in Motion model. Currently there are four books available on Amazon on good practices for the dimensions

of “the environment,” “mobility and transportation,” “the economy” and “social cohesion.” This collection will be expanded shortly to cover the rest of our model’s dimensions, with “international outreach” being the next volume in the series.

Moreover, new case studies have been published in addition to those that already exist on the cities of Vancouver *(Vancouver: The Challenge of Becoming the Greenest City)* and Barcelona *(A Roman Village Becoming a Smart City)*. During this academic year we have written a case study on the city of Málaga entitled *Málaga: In Search of Its Identity as a Smart City* and a case study on the city of Medellín, whose provisional title is *Medellín’s Transformation: Toward a More Equitable, Innovative and Participatory Urban Society*. These cases are available on the IESE case study portal (www.iesep.com) and there will soon be new cases available, including one dedicated to the city of Singapore and its “digital identity” project. As well as these publications, several academic papers have been published in prestigious journals such as the *Academy of Management Journal*, the *California Management Review* and the *Harvard Deusto Business Review*.* Finally, we have strengthened the presence of the IESE Cities in Motion platform on the Internet with our Twitter account (@iese_cim) and our monthly posts on the IESE Cities in Motion blog (blog.iese.edu/cities-challenges-and-management/).

We regard our publications and our presence in cyberspace as being the ideal complements of this index as they contribute to a better understanding of the reality of cities. Therefore, we believe that it will be useful for those in charge of making our cities better environments in which to live, work and enjoy life. Urban managers face significant obstacles such as difficulties in mobility, aging populations, increases in inequality, the persistence of poverty and pollution, among many other challenges. The scope and magnitude of these challenges demonstrate the need for the world’s cities to undertake a strategic review process that covers: what type of city they want to be, what their priorities are, and what process of change they will adopt in order to take advantage of the opportunities – and minimize the threats – of urbanization. This report is our humble contribution to advancing this process. We are convinced that we can live in better cities, but this will be possible only if all the social actors – the public sector, private companies, civic organizations and academic institutions – contribute and collaborate to achieve this common goal.

THE AUTHORS

Prof. Pascual Berrone

Holder of the Schneider Electric Sustainability and Business Strategy Chair

Academic codirector of IESE Cities in Motion Strategies

Prof. Joan Enric Ricart

Holder of the Carl Schrøder Chair of Strategic Management

Academic codirector of IESE Cities in Motion Strategies

*You will find a complete list of publications on the website www.iese.edu/cim.

ABOUT US

IESE Cities in Motion Strategies is a research platform launched jointly by the Center for Globalization and Strategy and IESE Business School's Department of Strategy.

The initiative connects a global network of experts in cities and specialist private companies with local governments from around the world. The aim is to promote changes at the local level and to develop valuable ideas and innovative tools that will lead to more sustainable and smarter cities.

The platform's mission is to promote the Cities in Motion model, with an innovative approach to city governance and a new urban model for the 21st century based on four main factors: sustainable ecosystem, innovative activities, equality among citizens, and connected territory.

WORKING TEAM

ACADEMIC TEAM

Prof. Pascual Berrone
Holder of the Schneider Electric Sustainability and Business Strategy Chair

Prof. Joan Enric Ricart
Holder of the Carl Schrøder Chair of Strategic Management

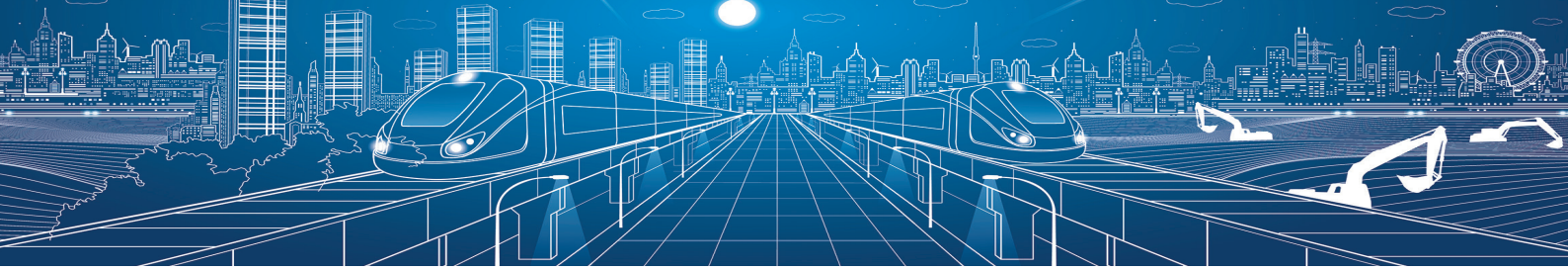
Carlos Carrasco
Research Collaborator

Ana Isabel Duch T-Figueras
Research Collaborator

TECHNICAL TEAM

David Augusto Giuliodori
Econfocus Consulting

María Andrea Giuliodori
Professor of statistics at the Institute of Stock Exchange Studies (IEB)



INTRODUCTION: THE NEED FOR A GLOBAL VISION

Today more than ever, cities need to develop strategic planning processes, since only then can they outline paths toward innovation and prioritize the aspects that are most important for their future.

The strategic planning process should be participatory and flexible, and a central aim should be established: to define a sustainable action plan that will make the metropolis unique and renowned. Just as two companies do not have the same recipe for success, each city must look for its own model based on a series of common reflections and considerations.

Experience shows that cities must eschew short-termism and broaden their field of view. They should turn to innovation more frequently to improve the efficiency and sustainability of their services. Also, they should promote communication and ensure that the public and businesses are involved in their projects.

The time has come to practice smart governance that takes into account all the factors and social actors in a global vision. In fact, over the past few decades, various national and international organizations have produced studies focusing on the definition, creation and use of indicators with a variety of aims, although mainly to contribute to a diagnosis of the state of cities. The definition of the indicators and the process of their creation are the result of the characteristics of each study, the statistical and econometric techniques that best fit the theoretical model and the available data, as well as the analysts' preferences.

Today we have a great deal of "urban" indicators, although many of them are neither standardized nor consistent and they cannot be used to compare cities. In fact, despite numerous attempts to develop city indicators at a national, regional and international level, few have been sustainable in the medium term, as they were created for studies meant to cover the specific information needs of certain bodies, whose lifespan depended on how long the financing would last. In other cases, the system of indicators depended on a political desire in specific circumstances, so they were abandoned when political priorities or the authorities themselves changed. As for the indicators developed by international organizations, it is true that they strive for the consistency and solidity necessary to compare cities; however, for the most part, they tend to be biased or focused on a particular area (technology, the economy, and the environment, among others).

Taking all this into account, the Cities in Motion Index **(CIMI)** has been designed with the aim of constructing a "breakthrough" indicator in terms of its completeness, characteristics, comparability and the quality and objectivity of its information. Its goal is to enable measurement of the future sustainability of the world's main cities as well as the quality of life of their inhabitants.

The **CIMI** is intended to help the public and governments to understand the performance of nine fundamental dimensions for a city: human capital, social cohesion, the economy, governance, the environment, mobility and transportation, urban planning, international outreach, and technology. All the indicators are linked with a strategic aim that leads to a novel form of local economic development: the creation of a global city, the promotion of the entrepreneurial spirit, and innovation, among other aspects.

Each city is unique and unrepeatable and has its own needs and opportunities, so it must design its own plan, set its priorities, and be flexible enough to adapt to changes.

Smart cities generate numerous business opportunities and possibilities for collaboration between the public and private sectors. All stakeholders can contribute, so an ecosystem network must be developed that will involve all of them: members of the public, organizations, institutions, government, universities, experts, research centers, etc.

Networking has its advantages: better identification of the needs of the city and its residents, the establishment of common aims and constant communication among participants, the expansion of learning opportunities, increased transparency, and the implementation of more flexible public policies. As a report by the Organization-

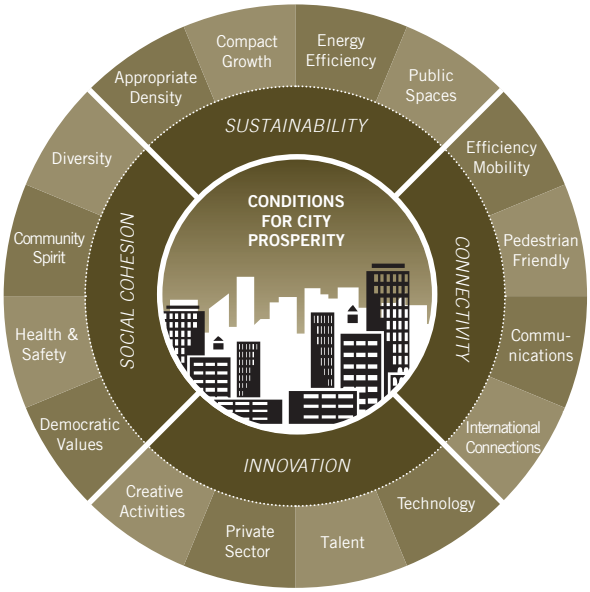
for Economic Cooperation and Development (OECD) pointed out back in 2001, the network approach allows local policies to be focused on the public.

Private enterprise also has much to gain with this system of networking: it can collaborate with the administration in the long term, access new business opportunities, gain a greater understanding of the needs of the local ecosystem, gain greater international visibility and attract talent.

Thanks to its technical expertise and its experience in project management, private enterprise, in collaboration with universities and other institutions, is suited to lead and develop smart city projects. In addition, it can provide efficiency and result in significant savings for public-private bodies.

Finally, it must not be forgotten that the human factor is fundamental in the development of cities. Without a participatory and active society, any strategy, albeit intelligent and comprehensive, will be doomed to failure. Beyond technological and economic development, it is the public that holds the key for cities to go from "smart" to "wise." That is precisely the goal to which every city should aspire: that the people who live there and their rulers deploy all their talent in favor of progress.

To help cities identify effective solutions, we have created an index that integrates nine dimensions in a single indicator and covers 165 cities worldwide. Thanks to its broad and integrated vision of the city, the Cities in Motion Index enables the strengths and weaknesses of each city to be identified.



OUR MODEL: CITIES IN MOTION. CONCEPTUAL FRAMEWORK, DEFINITIONS AND INDICATORS

Our platform proposes a conceptual model based on the study of a large number of success stories and a series of in-depth interviews with city leaders, entrepreneurs, academics and experts linked to the development of cities.

Our model proposes a set of steps that include diagnosis of the situation, the development of a strategy, and its subsequent implementation. The first step to giving a good diagnosis is to analyze the status of the key dimensions, which we will set out below along with the indicators used to calculate the **CIMI**.

HUMAN CAPITAL

The main goal of any city should be to improve its human capital. A city with smart governance must be capable of attracting and retaining talent, of creating plans to improve education, and of promoting creativity and research.

Table 1 sets out the indicators used in the human capital dimension, along with their descriptions, units of measurement, and information sources.

While human capital includes factors that make it more extensive than what can be measured with these indicators, there is international consensus that level of education and access to culture are irreplaceable components for measuring human capital. One of the pillars of human development is human capital and, given that the Human Development Index published annually by the United Nations Development Program (UNDP) includes education and culture as dimensions, it is valid to regard these indicators as factors explaining the differences in human capital in a city.

To define the human capital dimension, the **CIMI** includes the nine variables detailed in Table 1. All these variables are incorporated into the index with a positive sign due to their contribution to the development of the dimension.

TABLE 1. HUMAN CAPITAL INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
1	Higher education	Proportion of population with secondary and higher education.	Euromonitor
2	Business schools	Number of business schools (top 100).	Financial Times
3	Movement of students	International movement of higher-level students. Number of students.	UNESCO
4	Universities	Number of universities in the city that are in the top 500.	QS Top Universities
5	Museums and art galleries	Number of museums and art galleries per city.	OpenStreetMap
6	Schools	Number of public or private schools per city.	OpenStreetMap
7	Theaters	Number of theaters per city	OpenStreetMap
8	Expenditure on leisure and recreation	Expenditure on leisure and recreation per capita.	Euromonitor
9	Expenditure on leisure and recreation	Expenditure on leisure and recreation. In millions of dollars.	Euromonitor

To measure access to culture, the number of museums, art galleries and theaters and the expenditure on leisure and recreation are taken into account. These indicators show the city's commitment to culture and human capital. Cities that are considered creative and dynamic on a global level typically have museums and art galleries open to the public, offer visits to art collections, and carry out activities aimed at the conservation of art. The existence of a city's cultural and recreation provision results in greater expenditure on these activities by the population.

SOCIAL COHESION

Social cohesion is a sociological dimension of cities that can be defined as the degree of consensus among the members of a social group or as the perception of belonging to a common situation or project. It is a measure of the intensity of social interaction within the group. Social cohesion in the urban context refers to the degree of coexistence among groups of people with different incomes, cultures, ages, and professions who live in a city. Concern about the city's social setting requires an analysis of factors such as immigration, community development, care of the elderly, the effectiveness of the health system, and public inclusion and safety.

The presence of various groups in the same space and mixing and interaction between groups are essential in a sustainable urban system. In this context, social cohesion is a state in which citizens and the government share a vision of a society based on social justice, the primacy of the rule of law, and solidarity. This allows us to understand the importance of policies that foment and reinforce social cohesion based on democratic values.

Table 2 sets out the indicators selected for this dimension, descriptions of them, their units of measurement and the sources of information. This selection of indicators seeks to incorporate all the sociological subdimensions of social cohesion, taking into account the different variables available.

The ratio of deaths per 100,000 inhabitants and the crime rate are incorporated with a negative sign, while the health index is incorporated with a positive sign when creating this dimension. Furthermore, both the health index and the number of public and private hospitals and health centers per city are added with a positive sign, since access to and coverage provided by basic social services help strengthen social cohesion.

Employment, meanwhile, is a fundamental aspect in societies, to the extent that, according to historical evidence, a lack of employment can break the consensus or the implicit social contract. For this reason, the unemployment rate is incorporated with a negative sign in the dimension of social cohesion. For its part, the ratio of women who work in public administration is incorporated with a positive sign, since it is an indicator of gender equality in access to government jobs.

The Gini index is calculated from the Gini coefficient and measures social inequality. It assumes a value equal to 0 for situations in which there is a perfectly equitable distribution of income (everyone has the same income) and it assumes a value equal to 100 when the income distribution is completely unequal (one person has all the income and the others nothing). This indicator is included in the dimension with a negative sign, since a

TABLE 2. SOCIAL COHESION INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
10	Mortality	Ratio of deaths per 100,000 inhabitants.	Euromonitor
11	Crime rate	Crime rate.	Numbeo
12	Health	Health index.	Numbeo
13	Unemployment	Unemployment rate (number of unemployed out of the workforce).	Euromonitor
14	Gini index	Measure of social inequality. It varies from 0 to 100, with zero being a situation of perfect equality and 100 that of perfect inequality.	Euromonitor
15	Price of property	Price of property as percentage of income.	Numbeo
16	Female workers	Ratio of female workers in the public administration.	International Labour Organization
17	Global Peace Index	An index that measures the peacefulness and the absence of violence in a country or region. High values indicate countries with a high level of violence.	Institute for Economics and Peace
18	Hospitals	Number of public and private hospitals and health centers per city	OpenStreetMap
19	Happiness index	Happiness index of a country. The highest values on the index indicate countries that have a higher degree of overall happiness.	World Happiness Index
20	Global Slavery Index	Ranking that considers the proportion of people in a situation of slavery in the country. The countries occupying the top positions in the ranking are those with the highest proportion of the population in a situation of slavery.	Walk Free Foundation
21	Government response to situations of slavery	This variable measures how the government deals with situations of slavery in the country. The top positions in the ranking indicate countries that have a more effective and comprehensive response to slavery.	Walk Free Foundation
22	Terrorism	Number of terrorist acts of vandalism by city in the previous three years.	Global Terrorism Database, University of Maryland

greater Gini coefficient has a negative effect on a city's social cohesion.

The Global Peace Index is an indicator that represents the degree of tranquility and peace in a country or region, as well as the absence of violence and war. It includes internal variables such as violence and crime and external ones, such as military spending and the wars in which the country is taking part. The countries at the top of the ranking are countries with a low level of violence, so the indicator has a negative relationship with the **CIMI**.

The price of property as a percentage of income is also negatively related since, when the percentage of income to be used to buy a property increases, the incentives to belong to a particular city's society decrease.

Happiness is increasingly considered a suitable measure of social progress and has become a goal of government policies. According to the World Happiness Report, people consider themselves happy if they have a stable job and are healthy and if there is a more homogeneous distribution of wealth within the country or city where they live. To represent this degree of satisfaction, the happiness index of a country has been included. This variable is considered positive, since the countries that show themselves to be "happiest" (with high index values) are those that pay special attention to freedom, employment, health care, income and good governance. Thus, the happiness of a country or city would also be reflected in greater social coexistence.

This year, two new variables related to slavery have been incorporated: the proportion of people living in slavery and the measures that governments take to respond to this type of crime. Both variables are incorporated with a negative sign in the ranking, since they do not contribute to the development of a just and socially cohesive city.

Finally, a variable for terrorist acts of vandalism by city, committed in the previous three years, has been included. This variable is incorporated with a negative sign since this type of act undermines the social peace of the city.

TABLE 3. ECONOMIC INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
23	Productivity	Labor productivity calculated as GDP per working population (in thousands).	Euromonitor
24	Time required to start a business	Number of calendar days needed so a business can operate legally.	World Bank
25	Ease of starting a business	The top positions in the ranking indicate a more favorable regulatory environment for creating and developing a local company.	World Bank
26	Headquarters	Number of headquarters of publicly traded companies.	Globalization and World Cities (GaWC)
27	Motivation for early-stage entrepreneurial activity	Percentage of people involved in total entrepreneurial activity (TEA) who are motivated by an opportunity for improvement, divided by the percentage of TEA motivated by need. Total entrepreneurial activity (TEA): new entrepreneurs or owners/managers of a new business	Global Entrepreneurship Monitor (GEM)
28	GDP estimate	Estimated annual GDP growth	Euromonitor
29	GDP	Gross domestic product in millions of dollars at 2015 prices.	Euromonitor
30	GDP per capita	Gross domestic product per capita.	Euromonitor

ECONOMY

This dimension includes all those aspects that promote the economic development of a territory: local economic development plans, transition plans, strategic industrial plans, and cluster generation, innovation and entrepreneurial initiatives.

The indicators used to represent the performance of cities in the economic dimension are specified in Table 3, along with brief descriptions, units of measurement, and information sources.

Considering that the **CIMI** seeks to measure, via multiple dimensions, sustainability in the future of the world's main cities and the quality of life of their inhabitants, real GDP is a measure of the city's economic power and of its inhabitants' income. Indeed, in numerous studies, GDP is considered the only or the most important measure of the performance of a city or country. However, in this report, it is not considered as exclusive nor as the most important measure but as one more indicator within the framework of the nine dimensions of the **CIMI**. Thus, its share of the total is similar to that of other indicators. For example, if a city with a high or relatively high GDP does not have a good performance in other indicators, it may not be in one of the top positions. In this way, a city that is very productive but has problems with transportation, inequality, weak public finance or a production process that uses polluting technology probably will not be in the top positions of the ranking. Additionally, this year we have also included the estimated annual GDP growth to measure the future progress of the city.

For its part, labor productivity allows for a measurement of the strength, efficiency and technological level of the production system, which, with regard to local and international competitiveness, will have repercussions, obviously, on real salaries, capital income, and business profits. For this reason, it is very important to consider the measure in the economic dimension, since different productivity rates can explain differences in the quality of life of a city's workers – and in the sustainability over time of the production system.

The other indicators selected as representative of this dimension enable the measurement of some aspects of the business landscape of a city, such as the number of headquarters of publicly traded parent companies; the entrepreneurial capacity and possibilities of a city's inhabitants, represented by the percentage of entrepreneurs who start their activity motivated by personal improvement; the time required to start a business; and the ease of setting up a business in regulatory terms. These indicators measure a city's sustainability capacity over time and the potential ability to improve the quality of life of its inhabitants. The time required to start a business and the ease of launching it are incorporated into the economic dimension with a negative sign, since lower values indicate a greater ease of starting businesses. The number of headquarters of publicly traded parent companies, the entrepreneurial capacity and possibilities of a city's inhabitants and the number of entrepreneurs have a positive relationship, since the high values of these indicators reflect the economic dynamism of a city and the ease of setting up and starting a new business.

GOVERNANCE

Governance is the term commonly used to describe the effectiveness, quality and sound guidance of state intervention. Given that the citizen is the meeting point for solving all the challenges facing cities, factors such as the level of the public's participation, the authorities' ability to involve business leaders and local stakeholders, and the application of e-government plans should be taken into account. Moreover, this dimension encompasses all those actions aimed at improving the administration's efficiency, including the design of new organizational and management models. In this area, great opportunities open up for private initiative, which can bring greater efficiency.

In this work, governance is understood to have a strong correlation with the state of public finances of a city or country. In this sense, public accounts decisively affect people's quality of life and a city's sustainability, since they determine the level of present and future taxes that the residents and the production system must face, the expected growth of the general level of prices, the possibilities of public investment in basic social infrastructure, and incentives for private investment. In addition, if the state has financing needs, it will compete with the private sector for funds available in the financial system, which will affect investment.

The indicators that represent the governance dimension in this report are listed in Table 4, along with their descriptions, units of measurement, and sources of information.

The level of reserves is an indicator of the strength of the public finance system in the short and medium term, of their ability to cope with changing economic cycles, and of the strength and sustainability of the economic structure in relation to the state. Likewise, the number of embassies and consulates is an indicator of the city's international importance for global standards and is based on the embassies that foreign countries assign to the city.

Those cities with certification are committed to improving their services and quality of life. Therefore, a new variable is included this year that takes into account whether or not a city has ISO 37120 certification. The standards for smart cities are established in this standard, which is based on 100 indicators and aims to provide a parameter to compare all cities equally. This variable is incorporated with a positive sign.

The number of research centers and the number of government buildings show the degree of representativeness of local government among the public for attending to their requests and carrying out administrative tasks, regulation, etc. These variables are incorporated with a positive sign in the **CIMI** calculation.

The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate access to loans. The values go from 0 (low) to 12 (high) and the highest ratings indicate that the laws are better designed to expand access to credit. Creating the conditions and ensuring the effective implementation of the rights of the public and companies situated in their territory are functions that pertain to national or local governments and cannot be delegated. The perception of the observance of legal rights influences all aspects of life in a country or city, such as its business climate, investment incentives, and legal certainty, among others. For this reason, the strength of rights index has been incorporated with a positive sign in the creation of this dimension.

The government corruption perceptions index is a way to measure the quality of governance, since a high perception in society of corruption in public bodies is a sign that state intervention is not being efficient from the point of view of the social economy, given that public services – understood in a broad sense – involve higher costs in relation to a situation with no corruption. In addition, incentives to invest or settle in countries or cities with a high perception of corruption will be lower than in others with low levels, which negatively affects the sustainability of the country or city. In the case of the **CIMI**, it is taken as an explanatory indicator of the governance dimension, with a positive sign, due to how the index is calculated by the organization Transparency International, which assigns a value of 0 to countries with a high level of corruption and 100 for those that are very transparent.

Finally, the variable that considers whether a city's government has an open data platform is an indicator of transparency in government management, a communication channel with the public and a platform for generating new business models. The variable assigns a value of 1 if there is an open data platform and 0 otherwise. Therefore, the indicator is incorporated with a positive sign into this dimension.

The E-Government Development Index (EGDI) reflects how a country is using information technology to promote access and inclusion for its people. It is a measure composed of three important dimensions of e-government: the provision of online services, telecommunications connectivity and human capacity. This variable is incorporated with a positive sign.

TABLE 4. GOVERNANCE INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
31	Reserves	Total reserves in millions of current dollars.	World Bank
32	Reserves per capita	Reserves per capita in millions of current dollars.	World Bank
33	Embassies	Number of embassies and consulates per city.	OpenStreetMap
34	ISO 37120 certification	This establishes whether or not the city has ISO 37120 certification. Certified cities are committed to improving their services and quality of life. Variable coded from 0 to 6. Cities that have been certified for the longest time have the highest value. The value 0 is for cities without certification.	World Council on City Data (WCCD)
35	Research centers	Number of research and technology centers per city.	OpenStreetMap
36	Strength of legal rights	The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate access to loans. The values go from 0 = low to 12 = high, where the highest ratings indicate that the laws are better designed to expand access to credit.	World Bank
37	Corruption perceptions	Corruption perceptions index. Countries with values close to 0 are perceived as very corrupt and those with an index close to 100 are perceived as very transparent.	Transparency International
38	Open data platform	This describes whether the city has an open data system.	CTIC Foundation and Open World Bank
39	E-Government Development Index	The E-Government Development Index (EGDI) reflects how a country is using information technology to promote access and inclusion for its people.	United Nations
40	Democracy	Ranking where the countries in the highest positions are those considered more democratic.	The Economist
41	Government buildings	Number of government buildings and premises in the city.	OpenStreetMap

Finally, the Democracy Index is considered. This index shows a country's degree of democracy, represented by its electoral system, freedom of expression, functioning of the government, political participation and political culture. It is incorporated with a negative sign since the countries in the highest positions are those considered more democratic.

THE ENVIRONMENT

Sustainable development of a city can be defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] In this respect, factors such as improving environmental sustainability through antipollution plans, support for green buildings and alternative energy, efficient water management, and the existence of policies that help counter the effects of climate change are essential to guarantee the long-term sustainability of cities.

Since the **CIMI** also seeks to measure the environmental sustainability of cities, the environment is included as one of the essential aspects of measurement. Table 5 sets out the indicators selected in this dimension, as well as brief descriptions, their units of measurement, and the sources of the information.

The indicators selected include measurements of air pollution sources and water quality in cities, which are indicators of the quality of life of their inhabitants, as well as the sustainability of their production or urban matrix.

Carbon dioxide emissions come from the burning of fossil fuels and the manufacture of cement, while methane emissions arise from human activities such as agriculture and the industrial production of methane. CO_2 and methane emissions are the main measures that are commonly used to quantify the degree of air pollution, since they are substances that are strongly related to the greenhouse effect. In fact, the decline in these indicators' values is one of targets of the Kyoto Protocol.

Other very important indicators for measuring air pollution in cities are PM2.5 and PM10, a designation that corresponds to small particles, solid or liquid, of dust, ash, soot, metal particles, cement, or pollen, scattered in the atmosphere and whose diameter is less than 2.5 and 10 micrometers (μm), respectively. These particles

[1] Definition used in 1987 by the UN's World Commission on Environment and Development, created in 1983.

TABLE 5. ENVIRONMENTAL INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
42	CO_2 emissions	Carbon dioxide emissions from the burning of fossil fuels and the manufacture of cement. Measured in kilotons (kt).	World Bank
43	CO_2 emission index	CO_2 emission index.	Numbeo
44	Methane emissions	Methane emissions that arise from human activities such as agriculture and the industrial production of methane. Measured in kt of CO_2 equivalent.	World Bank
45	Access to the water supply	Percentage of the population with reasonable access to an appropriate quantity of water resulting from an improvement in the water supply.	World Bank
46	PM2.5	PM2.5 measures the number of particles in the air whose diameter is less than 2.5 µm. Annual mean.	World Health Organization
47	PM10	PM10 measures the number of particles in the air whose diameter is less than 10 µm. Annual mean.	World Health Organization
48	Pollution	Pollution index.	Numbeo
49	Environmental Performance Index	This measures environmental health and ecosystem vitality. Scale from 1 (poor) to 100 (good).	Yale University
50	Renewable water resources	Total renewable water sources per capita.	FAO
51	Future climate	Percentage of summer temperature increase in the city forecast for 2100 if carbon pollution continues to increase.	Climate Central
52	Solid waste	Average amount of municipal solid waste (garbage) generated annually per person (kg/yr).	Waste Management for Everyone

are formed primarily by inorganic compounds such as silicates and aluminates, heavy metals, and organic material associated with carbon particles (soot). These indicators are commonly used in the indexes that seek to measure the state of environmental pollution. They are also complemented by the information provided by a city's pollution index, which estimates its overall pollution. The greatest weight is given to those cities with the highest air pollution.

The Environmental Performance Index (EPI), calculated by Yale University, is an indicator based on the measurement of two major dimensions related to the environment: environmental health and ecosystem vitality. The first is divided into three subdimensions: effects on human health of air pollution, water quality and the environmental burden of diseases. Ecosystem vitality contains seven subdimensions: effects on the ecosystem of air pollution, water quality, biodiversity and habitat, afforestation, fish, agriculture, and climate change. Given the completeness of this indicator – which covers almost all aspects related to measuring the state and evolution of the environment in a city, complemented by the other indicators that the **CIMI** incorporates – the environment dimension is considered to be represented proportionately.

Water is a renewable energy source that is fundamental for dealing with climate change and its devastating effects. The variable of total renewable water sources per capita considers both internal and external renewable surface water resources. The variable represents the resources that a country has for a sustainable future. For this reason, it is included with a positive sign in the calculation of the index.

This year's edition includes a variable that represents the percentage increase of the city's summer temperature, forecast for 2100 if carbon pollution continues to increase. This variable shows the future risks of today's pollution. This variable is included with a negative sign, since a continuous increase in a city's temperature poses a threat to public health and the economy.

Finally, the average amount of municipal solid waste (garbage) generated annually per person (kg/year) in a city represents potential harm for its inhabitants and the environment due to the prevalence of poor solid waste management. In many cities, this poor management also means an additional health risk for the people who work with this waste. For this reason, the variable is incorporated into the index with a negative sign.

MOBILITY AND TRANSPORTATION

The cities of the future have to tackle two major challenges in the field of mobility and transportation: facilitating movement through cities (often large ones) and access to public services.

Mobility and transportation – both with regard to road and route infrastructure, the vehicle fleet, and public transportation, as well as to air transportation – affect the quality of life of a city's inhabitants and can be vital to the sustainability of cities over time. However, perhaps the most important aspect is the externalities that are generated in the production system, both because of the workforce's need to commute and because of the need for an outlet for production.

Table 6 sets out the indicators selected in the dimension of mobility and transportation, descriptions of them, their units of measurement and the sources of information.

The general traffic index, the index of traffic caused by commuting to work, and the inefficiency index are estimates of the traffic inefficiencies caused by long driving times and by the dissatisfaction that these situations generate in the population. These indicators are a measure of the safety of roads and public transportation, which, if it is effective and has a good infrastructure, promotes a decrease in vehicular traffic on the roads and reduces the number of accidents. All these are included with a negative sign in the calculation of the **CIMI**, since they have a negative impact on the development of a sustainable city.

The bike-sharing indicator collects information about a city's bike-sharing system, which enables moving from one location to another using bicycles available for public use. The indicator varies between 0 and 8, where 0 refers to the lack of this system in the city and 8 refers to a highly developed system. The variable is incorporated with a positive sign in the **CIMI**.

The number of metro stations and the length of the system are indicators of commitment to the development of the city and investment with respect to the population size. The number of air routes (arrivals), having a high-speed train and the number of gas stations represent the degree of infrastructure and development of a city. A highly developed city will favor the incorporation of new commercial air routes, as well as the circulation and transit of passengers using different means of transport. These indicators are included with a positive sign in the calculation of the index because of the positive influence they have on the dimension.

URBAN PLANNING

The urban planning of a city has several subdimensions and is closely related to sustainability. If this is inadequate, it causes a reduction in the public's quality of life

TABLE 6. MOBILITY AND TRANSPORTATION INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
53	Traffic index	Consideration of the time spent in traffic, the dissatisfaction this generates, CO_2 consumption and other inefficiencies of the traffic system.	Numbeo
54	Inefficiency index	Estimation of traffic inefficiencies (such as long journey times).	Numbeo
55	Index of traffic for commuting to work	Index of time based on how many minutes it takes to commute to work.	Numbeo
56	Bike sharing	The bicycle-sharing system shows the automated services for the public use of shared bicycles that provide transport from one location to another within a city. The indicator varies between 0 and 8 according to how developed the system is.	Bike-Sharing World Map
57	Metro length	Length of the metro system per city.	Metrobits.org
58	Metro stations	Number of metro stations per city.	Metrobits.org
59	Flights	Number of arrival flights (air routes) in a city.	OpenFlights
60	Gas stations	Number of gas stations per city.	OpenStreetMap
61	High-speed train	Binary variable that shows whether the city has a high-speed train or not.	OpenRailwayMap

in the medium term and can also negatively affect investment incentives, since a city with inadequate planning or with no planning at all hinders and increases the costs of logistics and workers' transportation, among other aspects.

To improve the habitability of any territory, it is necessary to take into account the local master plans and the design of green areas and spaces for public use, as well as opting for smart growth. The new urban planning methods should focus on creating compact, well-connected cities with accessible public services.

Depending on the information available, several aspects related to urban plans, the quality of health infrastructure, and housing policies are incorporated as indicators of this dimension. Table 7 sets out the indicators included in this dimension, along with their descriptions, their units of measurement, and the sources of information used.

The bicycle is an effective, fast, economical, healthy, and environmentally friendly means of transportation. Therefore its use has a positive impact on a city's sustainable development as it does not cause pollution or use fuel, among other benefits. Considering this positive effect, the index includes the number of bike-rental or bike-sharing points, based on docking stations where bicycles can be picked up or dropped off. Many cities historically considered to be smart cities have a certain positive correlation with a widespread presence of cycling. As a result, this variable is incorporated with a positive sign.

The quality of health infrastructure refers to the percentage of the population with at least sufficient access to sanitation facilities that help avoid the contact of humans, animals, and insects with excreta. For them to be effective, these facilities must be built correctly and undergo proper maintenance. This indicator has a high correlation with that of urban planning, since it can be shown that inadequate planning inevitably results in health problems in the short and medium term.

In addition, from the urban planning and housing point of view, a city with proper urban planning generally has few or no problems of overcrowding in households, since normally housing policy, in relation to the estimated growth of the urban population, is a determining factor in urban planning. For this reason, within the explanatory indicators of this dimension, the number of occupants of each household was considered with a negative sign.

The number of completed buildings and the percentage of high-rises in a city contribute to the creation of compact and organized cities. These variables are incorporated with a positive sign.

INTERNATIONAL OUTREACH

Cities that want to progress must secure a privileged place in the world. Maintaining global impact involves improving the city brand and its international recognition through strategic tourism plans, the attracting of foreign investment and representation abroad.

TABLE 7. URBAN PLANNING INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
62	Bicycles for rent	Number of bike-rental or bike-sharing points, based on docking stations where they can be picked up or dropped off.	OpenStreetMap
63	Percentage of the population with access to sanitation facilities	Percentage of the population with at least sufficient access to facilities for the disposal of excreta that can efficiently avoid the contact of humans, animals and insects with excreta.	World Bank
64	Number of people per household	Number of people per household. Occupancy by household is measured compared to the average. This makes it possible to estimate if a city has overoccupied or underoccupied households.	Euromonitor
65	High-rise buildings	Percentage of buildings that are considered high-rises. A high-rise is a building of at least 12 stories or 35 meters (115 feet) high.	Skyscraper Source Media
66	Buildings	The buildings variable is the number of completed buildings in the city. This includes structures such as high-rises, towers and smaller buildings but excludes other diverse structures and buildings in different states of completion (in construction, planned, etc.).	Skyscraper Source Media

Cities can have a greater or lesser international outreach even if they are from the same country but this is not independent of the degree of openness nationally. This dimension seeks to reflect these differences and to measure the international outreach of cities.

In this respect, the following indicators have been included: airports, number of passengers by airport, number of hotels in a city, ranking of the most-photographed places in the world according to Sightsmap, and number of meetings and conferences that take place according to data from the International Congress and Convention Association. This last indicator is important for a city's international reputation, taking into account that these events usually take place in cities with international hotels, rooms specially fitted out for such ends, good frequency of international flights, and appropriate security measures. Table 8 summarizes these indicators, along with descriptions of them, their units of measurement, and the source of the information.

All indicators of this dimension, except Sightsmap, are incorporated with a positive sign into the calculation of the **CIMI** since, faced with higher values of the indicators, the city has a greater impact on the world. Sightsmap is incorporated with a negative sign, since the top positions in the ranking correspond with the most-photographed cities.

TECHNOLOGY

Although not the only important aspect for cities, information and communications technology (ICT) is part of the backbone of any society that wants to achieve "smart" status.

Technology, an integral dimension of the **CIMI,** is an aspect of society that improves the present quality of life, and its level of development or spread is an indicator of the quality of life achieved or the potential quality of life. In addition, technological development is a dimension that allows cities to be sustainable over time and to maintain or extend the competitive advantages of their production system and the quality of employment. A technologically backward city has comparative disadvantages with respect to other cities, both from the point of view of security, education, and health, all fundamental to the sustainability of society, and from the point of view of the productive apparatus. As a consequence of this, the production functions become anachronistic. Competitiveness, without protectionism, becomes depleted, which has a negative effect on the city's capacity for consumption and investment, as well as reducing labor productivity.

The indicators selected for measuring the cities' performance in terms of the reach of technology and growth in the cities are set out in Table 9 below.

TABLE 8. INTERNATIONAL OUTREACH INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
67	McDonald's	Number of McDonald's restaurants per city.	OpenStreetMap
68	Airports	Number of points where flight operations take place within a 40 km radius from the latitude and longitude defining the center of the city. It includes airports, aerodromes, airfields, and landing strips whether international, private, military or otherwise. Also included are the buildings used for processing passengers and cargo (terminals).	OpenStreetMap
69	Number of passengers per airport	Number of passengers per airport in thousands.	Euromonitor
70	Sightsmap	Ranking of cities according to the number of photos taken in the city and uploaded to Panoramio (community for sharing photographs online). The top positions correspond to the cities with the most photographs.	Sightsmap
71	Number of conferences and meetings	Number of international conferences and meetings that take place in a city.	International Congress and Convention Association
72	Hotels	Number of hotels per capita.	OpenStreetMap

The indicators that represent the number of Twitter, Facebook and LinkedIn users are grouped into a variable called "social media." The variable is incorporated with a positive sign in the **CIMI,** since it shows the degree to which a city's inhabitants are connected to the technology.

The variables showing the percentage of households with the Internet, percentage of households with mobile phones, landline subscriptions and broadband subscriptions show the degree of technological development that a city has, facilitating the access of households and businesses to the means necessary to make efficient use of technology.

The Innovation Cities Index (ICI) is calculated by carrying out assessments on the basis of various factors regarding technological innovation in cities, in sectors such as health, the economy in general and the population, among others. It is now the most comprehensive indicator for measuring the degree of development of innovation in cities, and is divided methodologically into three aspects or dimensions: cultural assets, human infrastructure and interconnected markets.

The number of wireless access points globally represents the connection options available to the city's inhabitants when they are outside their home. This variable represents the city's degree of commitment to technological development.

Finally, the number of Apple Stores that a city has represents its inhabitants' demand for technology. A high number of stores in a city is due to a greater need among the population to have the latest generation of technological means.

All the indicators of this dimension are related directly to technology, so they are incorporated with a positive sign in this dimension.

TABLE 9. TECHNOLOGY INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	SOURCE
73	Twitter	Registered Twitter users in the city. This is part of the "social media" variable.	Tweet Map
74	LinkedIn	Number of registered users in the city. This is part of the "social media" variable.	LinkedIn
75	Facebook	Number of people who are currently registered in the city. Facebook is part of the "social media" variable.	Facebook
76	Mobile phones	Number of mobile phones in the city, using estimates in line with country-level data.	International Telecommunication Union
77	Wi-Fi hot spot	Number of wireless access points globally. These represent the options there are in the city for connecting to the Internet.	Wi-Fi Map app
78	Apple Store	Number of Apple Stores per city.	OpenStreetMap
79	Innovation index	The city's innovation index. Valuation from 0 = no innovation to 60 = a lot of innovation.	Innovation Cities Program
80	Landline subscriptions	Number of landline subscriptions per 100 inhabitants.	International Telecommunication Union
81	Broadband subscriptions	Broadband subscriptions per 100 inhabitants.	International Telecommunication Union
82	Internet	Percentage of households with access to the Internet.	Euromonitor
83	Mobile telephony	Percentage of households with mobile phones in the city.	Euromonitor

LIMITATIONS OF THE INDICATORS

Appendix 1 describes, by way of summary, all the indicators used in each of the dimensions and includes brief descriptions, units of measurement and the sources of information.

Perhaps the most significant limitation in the calculation of the **CIMI** is linked to the availability of data. Nevertheless, efforts were made to minimize this impact. First of all, for those indicators that did not have data for the entire period under analysis, extrapolation techniques were used. For situations where the indicator values by city were nonexistent but where there were valid values by country, individual values were assigned to each city, connecting the indicator at the country level via some other variable linked theoretically at the city level. Lastly, there were cases where no data were available for a particular city or group of cities for the whole period under consideration. In this case, statistical cluster techniques were used. The scope and detail of these tools are discussed in detail in the supplementary document "Methodology and Modeling" from 2014.

With the **CIMI** platform, we continue to work to obtain more complete and accurate indicators, while we urge cities to allow access to the information they generate.

GEOGRAPHIC COVERAGE

For the calculation of this year's **CIMI,** 165 cities have been included, 74 of which are capitals, with the geographical distribution depicted in Figure 1.

FIGURE 1. GEOGRAPHICAL DISTRIBUTION OF THE CITIES INCLUDED IN THE INDEX

Western Europe

Linz, Austria
Vienna, Austria
Antwerp, Belgium
Brussels, Belgium
Copenhagen, Denmark
Helsinki, Finland
Lille, France
Lyon, France
Marseille, France
Nice, France
Paris, France
Berlin, Germany
Cologne, Germany
Duisburg, Germany
Frankfurt, Germany
Hamburg, Germany
Munich, Germany
Stuttgart, Germany
Athens, Greece
Reykjavik, Iceland
Dublin, Ireland
Florence, Italy
Milan, Italy
Naples, Italy
Rome, Italy
Turin, Italy
Amsterdam, Netherlands
Eindhoven, Netherlands
Rotterdam, Netherlands
Oslo, Norway
Lisbon, Portugal
Porto, Portugal
A Coruña, Spain
Barcelona, Spain
Bilbao, Spain
Madrid, Spain
Málaga, Spain
Murcia, Spain
Palma de Mallorca, Spain
Seville, Spain
Valencia, Spain
Valladolid, Spain
Vigo, Spain
Zaragoza, Spain
Göteborg, Sweden
Stockholm, Sweden
Basel, Switzerland
Bern, Switzerland
Geneva, Switzerland
Zurich, Switzerland
Birmingham, United Kingdom
Glasgow, United Kingdom
Leeds, United Kingdom
Liverpool, United Kingdom
London, United Kingdom
Manchester, United Kingdom
Nottingham, United Kingdom

Eastern Europe and Russia

Baku, Azerbaijan
Minsk, Belarus
Sarajevo, Bosnia and Herzegovina
Sofia, Bulgaria
Zagreb, Croatia
Prague, Czech Republic
Tallinn, Estonia
Tbilisi, Georgia
Budapest, Hungary
Riga, Latvia
Vilnius, Lithuania
Skopje, Macedonia
Warsaw, Poland
Moscow, Russia
Novosibirsk, Russia
Saint Petersburg, Russia
Belgrade, Serbia
Bratislava, Slovakia
Ljubljana, Slovenia
Ankara, Turkey
Istanbul, Turkey
Kiev, Ukraine

North America

Montreal, Canada
Ottawa, Canada
Toronto, Canada
Vancouver, Canada
Baltimore, USA
Boston, USA
Chicago, USA
Dallas, USA
Houston, USA
Los Angeles, USA
Miami, USA
New York, USA
Philadelphia, USA
Phoenix, USA
San Antonio, USA
San Diego, USA
San Francisco, USA
Washington, USA

Latin America and the Caribbean

Buenos Aires, Argentina
Cordoba, Argentina
Rosario, Argentina
La Paz, Bolivia
Santa Cruz, Bolivia
Belo Horizonte, Brazil
Brasilia, Brazil
Curitiba, Brazil
Rio de Janeiro, Brazil
Salvador, Brazil
São Paulo, Brazil
Santiago, Chile
Bogota, Colombia
Cali, Colombia
Medellín, Colombia
San José, Costa Rica
Santo Domingo, Dominican Rep.
Guayaquil, Ecuador
Quito, Ecuador
Guatemala City, Guatemala
Mexico City, Mexico
Panama City, Panama
Lima, Peru
Montevideo, Uruguay
Caracas, Venezuela

Africa

Douala, Cameroon
Cairo, Egypt
Nairobi, Kenya
Casablanca, Morocco
Rabat, Morocco
Lagos, Nigeria
Cape Town, South Africa
Johannesburg, South Africa
Tunis, Tunisia

Middle East

Manama, Bahrain
Jerusalem, Israel
Tel Aviv, Israel
Amman, Jordan
Kuwait City, Kuwait
Doha, Qatar
Riyadh, Saudi Arabia
Abu Dhabi, UAE
Dubai, UAE

Oceania

Melbourne, Australia
Sydney, Australia
Auckland, New Zealand
Wellington, New Zealand

Asia

Beijing, China
Guangzhou, China
Hong Kong, China
Shanghai, China
Shenzhen, China
Tianjin, China
Kolkata, India
Mumbai, India
New Delhi, India
Jakarta, Indonesia
Nagoya, Japan
Osaka, Japan
Tokyo, Japan
Almaty, Kazakhstan
Kuala Lumpur, Malaysia
Karachi, Pakistan
Manila, Philippines
Singapore, Singapore
Seoul, South Korea
Bangkok, Thailand
Ho Chi Minh City, Vietnam

CITIES IN MOTION. RANKING

The **CIMI**, which is the subject of this report, is a synthetic indicator and, as such, is a function based on the partial indicators available.

The process of creating this synthetic indicator is based on a model of weighted aggregation of partial indicators that represent each of the nine dimensions that make up the **CIMI** theoretical model. The dimensions selected to describe the situation of cities in terms of sustainability and the quality of life of their inhabitants, both in the present and in the future, are as follows: governance, urban planning, technology, the environment, international outreach, social cohesion, human capital, mobility and transportation, and the economy.

The partial indicators representative of each dimension also correspond to the category of synthetic indicators, which are defined as "weighted aggregations of each of the selected indicators that represent different factors of each dimension."

Given the type of indicator in question and the data available, for the calculation of the **CIMI**, the DP2 technique has been used, this being the most widely used internationally and the most suitable. Its methodology is based on distance – that is, the difference between an indicator's given value and another value taken as a reference or target. Likewise, this technique attempts to correct the dependence among the partial indicators, which would artificially increase the indicator's sensitivity to variations in certain partial values. The correction consists of applying the same factor to each partial indicator, assuming a linearly dependent function is established between them.[2]

Given the partial indicators, the factors are given by the complement of the coefficient of determination (R^2) for each indicator compared with the rest of the partial indicators. The order in which the indicators of each dimension have been included, as well as their relative weight in the **CIMI**, is as follows: the economy (1), human capital (0.521), international outreach (0.564), urban planning (0.538), the environment (0.859), technology (0.394), governance (0.444), social cohesion (0.571) and mobility and transportation (0.516).

While the order in which each synthetic index of each dimension is incorporated influences the value of the **CIMI**, the sensitivity studies carried out concluded that there are no significant variations in it. More details on the methodology can be seen in the supplementary document "Methodology and Modeling" published in 2014.

Table 10 sets out the **CIMI** city ranking, together with the index value. The cities are grouped according to their performance, measured by the value of the synthetic indicator. Cities with a high performance (H) are considered to be those with an index greater than 90; relatively high (RH), between 60 and 90; average (A), between 45 and 60; and low (L), below 45.

For 2017, it can be observed that 27.27% of the cities (45) have a performance rated high (H) or relatively high (RH), headed by New York City, London and Paris. There are 68 cities (41.21%) with an average (A) performance, while the performances classified as low (L) include 31.52% of the selected cities. None of them has a rating of very low. Of the top 25, 12 are in Europe, six in North America, four in Asia, and three in Oceania.

[2] Because linear estimates are involved, variables with a normal distribution are required, so a log transformation has been applied to some variables to obtain the said normality. Likewise, outlier techniques have been applied to avoid bias and overestimations of coefficients.

TABLE 10. CITY RANKING

RANKING	CITY	PERFORMANCE	CIMI
1	New York-United States	A	100.00
2	London-United Kingdom	A	99.27
3	Paris-France	A	90.20
4	Tokyo-Japan	RA	84.38
5	Reykjavik-Iceland	RA	83.26
6	Singapore-Singapore	RA	79.52
7	Seoul-South Korea	RA	79.21
8	Toronto-Canada	RA	78.16
9	Hong Kong-China	RA	77.48
10	Amsterdam-The Netherlands	RA	77.44
11	Berlin-Germany	RA	76.34
12	Melbourne-Australia	RA	74.91
13	Copenhagen-Denmark	RA	74.55
14	Chicago-United States	RA	73.55
15	Sydney-Australia	RA	73.50
16	Stockholm-Sweden	RA	73.29
17	Los Angeles-United States	RA	72.80
18	Wellington-New Zealand	RA	71.64
19	Vienna-Austria	RA	71.51
20	Washington-United States	RA	70.31
21	Boston-United States	RA	69.39
22	Helsinki-Finland	RA	69.17
23	Oslo-Norway	RA	68.14
24	Zurich-Switzerland	RA	68.04
25	Madrid-Spain	RA	67.76
26	Barcelona-Spain	RA	67.53
27	San Francisco-United States	RA	67.31
28	Auckland-New Zealand	RA	66.33
29	Bern-Switzerland	RA	66.12
30	Dublin-Ireland	RA	65.63
31	Hamburg-Germany	RA	65.10
32	Geneva-Switzerland	RA	64.96
33	Göteborg-Sweden	RA	64.95
34	Basel-Switzerland	RA	64.88
35	Ottawa-Canada	RA	64.79
36	Vancouver-Canada	RA	64.78
37	Munich-Germany	RA	64.42
38	Montreal-Canada	RA	64.42
39	Houston-United States	RA	64.36
40	Prague-Czech Republic	RA	63.85
41	Dallas-United States	RA	61.70
42	Frankfurt-Germany	RA	61.61
43	Rotterdam-The Netherlands	RA	60.62
44	Lyon-France	RA	60.49
45	Milan-Italy	RA	60.06
46	Philadelphia-United States	M	59.70
47	San Diego-United States	M	59.34
48	Brussels-Belgium	M	59.01
49	Riga-Latvia	M	58.98
50	Tallinn-Estonia	M	58.97
51	Miami-United States	M	58.72
52	Lisbon-Portugal	M	58.61
53	Budapest-Hungary	M	58.55
54	Cologne-Germany	M	58.37
55	Stuttgart-Germany	M	57.94
56	Osaka-Japan	M	57.43
57	Shanghai-China	M	57.33
58	Birmingham-United Kingdom	M	56.95
59	Manchester-United Kingdom	M	56.76
60	Dubai-United Arab Emirates	M	56.70
61	Vilnius-Lithuania	M	56.57
62	San Antonio-United States	M	56.50
63	Valencia-Spain	M	56.41
64	Warsaw-Poland	M	56.33
65	Eindhoven-The Netherlands	M	56.30
66	Rome-Italy	M	56.23
67	Bratislava-Slovakia	M	56.18
68	Glasgow-United Kingdom	M	55.87
69	Antwerp-Belgium	M	55.77
70	Moscow-Russia	M	55.50
71	Nagoya-Japan	M	55.29
72	Tel Aviv-Israel	M	55.25
73	Linz-Austria	M	54.85
74	Ljubljana-Slovenia	M	54.72
75	Phoenix-United States	M	54.72
76	Buenos Aires-Argentina	M	54.68
77	Baltimore-United States	M	54.50
78	Beijing-China	M	54.20
79	Nice-France	M	54.15
80	Marseille-France	M	53.47
81	Leeds-United Kingdom	M	53.10
82	Liverpool-United Kingdom	M	53.06
83	Zagreb-Croatia	M	52.31
84	Lille-France	M	52.09
85	Seville-Spain	M	51.96
86	Santiago-Chile	M	51.45
87	Kuala Lumpur-Malaysia	M	51.38
88	Porto-Portugal	M	51.32
89	Málaga-Spain	M	50.44
90	Bangkok-Thailand	M	50.34
91	Duisburg-Germany	M	50.19
92	Palma de Mallorca-Spain	M	49.96
93	Zaragoza-Spain	M	49.82
94	Panama City-Panama	M	49.77
95	Murcia-Spain	M	49.76
96	Nottingham-United Kingdom	M	49.26
97	Abu Dhabi-United Arab Emirates	M	49.22
98	Florence-Italy	M	48.88
99	Valladolid-Spain	M	48.57
100	Montevideo-Uruguay	M	48.25
101	Sofia-Bulgaria	M	48.10
102	San José-Costa Rica	M	48.08
103	Bilbao-Spain	M	47.97
104	Vigo-Spain	M	47.82
105	A Coruña-Spain	M	46.45
106	Turin-Italy	M	46.39
107	Mexico City-Mexico	M	46.35
108	Minsk-Belarus	M	46.16
109	Guangzhou-China	M	45.78
110	Belgrade-Serbia	M	45.73
111	Doha-Qatar	M	45.69
112	Tbilisi-Georgia	M	45.69
113	Kiev-Ukraine	M	45.22
114	Istanbul-Turkey	B	44.98
115	Shenzhen-China	B	44.84
116	São Paulo-Brazil	B	44.63
117	Bogota-Colombia	B	44.10
118	Almaty-Kazakhstan	B	43.73
119	Naples-Italy	B	43.59
120	Ankara-Turkey	B	43.57
121	Jerusalem-Israel	B	43.14
122	Athens-Greece	B	42.55

RANKING	CITY	PERFORMANCE	CIMI
123	Saint Petersburg-Russia	B	42.37
124	Ho Chi Minh City-Vietnam	B	42.08
125	Skopje-Macedonia	B	42.04
126	Rio de Janeiro-Brazil	B	41.89
127	Baku-Azerbaijan	B	40.92
128	Kuwait City-Kuwait	B	39.85
129	Medellín-Colombia	B	39.53
130	Rosario-Argentina	B	38.80
131	Lima-Peru	B	38.68
132	Sarajevo-Bosnia and Herzegovina	B	38.60
133	Cordoba-Argentina	B	37.59
134	Tunis-Tunisia	B	37.29
135	Curitiba-Brazil	B	37.09
136	Jakarta-Indonesia	B	36.56
137	Cali-Colombia	B	36.08
138	Brasilia-Brazil	B	36.05
139	Amman-Jordan	B	35.69
140	Quito-Ecuador	B	35.57
141	Guatemala City-Guatemala	B	35.23
142	Novosibirsk-Russia	B	34.48
143	Cape Town-South Africa	B	34.30
144	Manama-Bahrain	B	33.30

RANKING	CITY	PERFORMANCE	CIMI
145	Santa Cruz-Bolivia	B	32.97
146	Manila-Philippines	B	32.73
147	Salvador-Brazil	B	31.65
148	Casablanca-Morocco	B	31.26
149	Tianjin-China	B	30.61
150	Guayaquil-Ecuador	B	30.35
151	Belo Horizonte-Brazil	B	30.21
152	La Paz-Bolivia	B	30.08
153	Riyadh-Saudi Arabia	B	29.13
154	Santo Domingo-Dominican Republic	B	29.10
155	Rabat-Morocco	B	28.12
156	Johannesburg-South Africa	B	27.42
157	Cairo-Egypt	B	27.24
158	Mumbai-India	B	26.67
159	New Delhi-India	B	26.60
160	Douala-Cameroon	B	26.52
161	Nairobi-Kenya	B	25.97
162	Caracas-Venezuela	B	21.38
163	Kolkata-India	B	21.14
164	Lagos-Nigeria	B	20.41
165	Karachi-Pakistan	B	17.23

CITIES IN MOTION. RANKING BY DIMENSION

This section sets out the ranking according to each of the dimensions that make up the index, together with the city's position overall and for each dimension. To make the visual layout more intuitive, the darker greens correspond to the highest positions in the **CIMI** ranking, and the darker reds represent the worst-positioned cities. The intermediate positions appear highlighted in yellow shades.

New York City (United States) is in first place in the overall ranking, thanks to its performance in the dimensions of the economy (position 1), urban planning (position 1), international outreach (position 3), human capital (position 4), and mobility and transportation (position 4). However, it continues to be in very low positions in the dimensions of social cohesion (position 109) and the environment (position 99).

London (United Kingdom) is in second place in the overall ranking, thanks to its performance in the dimensions of human capital (position 1), international outreach (position 2), mobility and transportation (position 2), and the economy (position 4). It performs worse in social cohesion (position 68) and the environment (position 40).

The city of Reykjavik (Iceland), added to the **CIMI** this year, stands out in position 5 of the overall ranking, occupying first place in the environment dimension. It also stands out in mobility and transportation and in technology, in position 7 in both dimensions. However, it performs poorly in the international outreach dimension, where it occupies position 121.

Of the top 30 positions in the overall ranking, half are occupied by European cities. Additionally, of the 14 U.S. cities considered in the **CIMI**, six are in the top 30 of the overall ranking.

Table 11 shows both the overall ranking and the ranking by dimension for the 165 cities included in the **CIMI**. The interpretation of the table is very important for the analysis of the results, since the relative position of all cities in each of the dimensions can be observed. In Figure 2, the positions of the cities on the world map can be seen. In addition, the data for each city can be accessed at the official webpage of IESE Cities in Motion with an interactive interface that also allows the user to compare two cities at once.

TABLE 11. RANKING BY DIMENSION

City	Economy	Human Capital	Social Cohesion	Environment	Governance	Urban Planning	International Outreach	Technology	Mobility and Transportation	Cities in Motion
New York-United States	1	4	109	99	38	1	3	5	4	1
London-United Kingdom	4	1	68	40	5	7	2	6	2	2
Paris-France	7	8	87	49	43	3	1	12	1	3
Tokyo-Japan	2	5	48	11	40	32	17	27	22	4
Reykjavik-Iceland	27	83	47	1	27	66	121	7	7	5
Singapore-Singapore	13	39	90	10	8	39	5	2	63	6
Seoul-South Korea	15	11	38	25	22	40	20	10	3	7
Toronto-Canada	28	24	28	55	4	2	25	16	68	8
Hong Kong-China	19	12	147	21	16	10	16	1	87	9
Amsterdam-Netherlands	36	46	26	36	23	13	6	3	13	10
Berlin-Germany	66	7	3	54	14	49	4	33	6	11
Melbourne-Australia	34	18	8	26	2	19	10	48	38	12
Copenhagen-Denmark	12	54	23	3	13	90	32	20	43	13
Chicago-United States	10	10	96	127	46	5	9	28	42	14
Sydney-Australia	35	15	20	22	26	17	21	8	76	15
Stockholm-Sweden	5	55	64	8	19	45	36	25	44	16
Los Angeles-United States	3	2	79	144	7	23	11	38	112	17
Wellington-New Zealand	22	85	15	2	25	14	132	62	15	18
Vienna-Austria	72	31	36	18	18	41	8	23	14	19
Washington-United States	11	6	72	128	21	12	49	32	41	20
Boston-United States	14	3	61	118	12	30	55	39	77	21
Helsinki-Finland	32	57	1	12	6	61	50	55	67	22
Oslo-Norway	17	62	21	13	51	48	64	24	78	23
Zurich-Switzerland	24	40	4	24	9	97	62	31	75	24
Madrid-Spain	64	34	53	50	34	37	19	21	9	25
Barcelona-Spain	78	37	86	66	15	16	14	15	12	26
San Francisco-United States	6	13	75	110	70	28	41	14	98	27
Auckland-New Zealand	18	87	27	14	52	27	70	65	69	28
Bern-Switzerland	47	72	2	73	1	108	131	107	31	29
Dublin-Ireland	16	80	22	35	45	75	44	17	100	30
Hamburg-Germany	57	27	33	67	31	44	48	53	11	31
Geneva-Switzerland	31	70	25	68	3	93	80	13	54	32
Göteborg-Sweden	21	64	62	19	32	76	104	73	20	33

TABLE 11. RANKING BY DIMENSION (CONTINUED)

City	Economy	Human Capital	Social Cohesion	Environment	Governance	Urban Planning	International Outreach	Technology	Mobility and Transportation	Cities in Motion
Basel-Switzerland	44	59	5	41	11	100	58	70	18	34
Ottawa-Canada	52	38	14	59	10	8	109	78	71	35
Vancouver-Canada	42	45	37	78	35	4	43	44	105	36
Munich-Germany	38	42	9	72	67	72	42	69	8	37
Montreal-Canada	51	51	39	63	24	9	23	118	80	38
Houston-United States	8	17	59	146	44	25	29	29	107	39
Prague-Czech Republic	82	61	31	23	60	94	27	18	66	40
Dallas-United States	9	19	81	134	57	55	45	66	104	41
Frankfurt-Germany	45	32	67	93	81	29	34	94	29	42
Rotterdam-Netherlands	75	58	18	56	82	11	92	61	21	43
Lyon-France	43	60	45	52	63	38	67	101	36	44
Milan-Italy	69	35	92	57	104	47	46	71	16	45
Philadelphia-United States	20	14	93	143	62	42	59	63	85	46
San Diego-United States	25	23	80	136	17	53	73	19	113	47
Brussels-Belgium	65	95	69	47	71	59	53	45	19	48
Riga-Latvia	84	78	78	5	72	24	106	49	47	49
Tallinn-Estonia	83	84	54	4	96	26	126	30	59	50
Miami-United States	29	20	107	132	89	46	22	46	90	51
Lisbon-Portugal	88	66	77	9	74	95	33	41	93	52
Budapest-Hungary	110	52	101	17	64	70	35	34	65	53
Cologne-Germany	67	47	19	98	37	118	54	60	55	54
Stuttgart-Germany	49	53	13	64	68	113	79	116	45	55
Osaka-Japan	41	49	60	30	83	104	74	96	84	56
Shanghai-China	60	16	148	149	30	56	26	52	5	57
Birmingham-United Kingdom	53	22	29	74	41	63	98	90	116	58
Manchester-United Kingdom	56	21	30	104	58	82	65	75	108	59
Dubai-United Arab Emirates	54	130	44	151	33	112	13	4	102	60
Vilnius-Lithuania	91	68	98	16	39	52	114	84	40	61
San Antonio-United States	23	26	84	133	97	57	101	42	79	62
Valencia-Spain	98	97	50	43	20	60	112	74	25	63
Warsaw-Poland	108	65	58	83	50	15	30	114	58	64
Eindhoven-Netherlands	58	73	7	113	49	21	162	51	60	65
Rome-Italy	76	50	120	107	69	129	15	50	23	66

TABLE 11. RANKING BY DIMENSION (CONTINUED)

City	Economy	Human Capital	Social Cohesion	Environment	Governance	Urban Planning	International Outreach	Technology	Mobility and Transportation	Cities in Motion
Bratislava-Slovakia	74	81	16	32	42	64	90	131	91	67
Glasgow-United Kingdom	59	36	35	75	56	91	69	67	119	68
Antwerp-Belgium	80	99	32	45	117	33	123	85	17	69
Moscow-Russia	105	9	146	101	36	22	51	80	70	70
Nagoya-Japan	46	56	40	20	73	102	133	109	118	71
Tel Aviv-Israel	48	116	76	38	79	31	103	37	110	72
Linz-Austria	73	76	6	37	75	107	157	98	46	73
Ljubljana-Slovenia	89	96	17	34	111	73	111	43	56	74
Phoenix-United States	37	33	70	138	94	65	115	92	37	75
Buenos Aires-Argentina	151	43	94	33	29	18	24	126	96	76
Baltimore-United States	33	28	97	139	47	51	105	86	99	77
Beijing-China	50	29	129	160	76	111	12	57	10	78
Nice-France	71	63	55	69	90	85	87	81	82	79
Marseille-France	63	82	88	87	78	68	75	122	49	80
Leeds-United Kingdom	62	30	24	91	53	96	146	106	140	81
Liverpool-United Kingdom	61	48	10	116	59	103	127	95	122	82
Zagreb-Croatia	126	108	43	27	55	80	119	56	94	83
Lille-France	70	88	66	84	120	77	83	123	39	84
Seville-Spain	116	98	74	77	105	20	95	105	33	85
Santiago-Chile	122	91	91	28	107	62	78	77	72	86
Kuala Lumpur-Malaysia	81	120	115	85	102	99	40	79	48	87
Porto-Portugal	106	126	83	15	112	98	38	130	120	88
Málaga-Spain	123	107	51	89	85	83	99	87	26	89
Bangkok-Thailand	77	123	102	135	136	50	7	59	114	90
Duisburg-Germany	86	67	11	109	113	123	100	144	51	91
Palma de Mallorca-Spain	99	114	82	96	88	71	96	47	50	92
Zaragoza-Spain	102	93	71	106	101	67	130	82	28	93
Panama City-Panama	79	75	110	42	126	121	72	36	125	94
Murcia-Spain	100	110	56	111	93	43	156	104	24	95
Nottingham-United Kingdom	68	41	34	119	65	105	160	93	136	96
Abu Dhabi-United Arab Emirates	26	149	12	162	87	131	71	9	64	97
Florence-Italy	92	77	100	126	135	125	85	22	30	98
Valladolid-Spain	113	102	73	51	95	81	159	129	53	99

TABLE 11. RANKING BY DIMENSION (CONTINUED)

City	Economy	Human Capital	Social Cohesion	Environment	Governance	Urban Planning	International Outreach	Technology	Mobility and Transportation	Cities in Motion
Montevideo-Uruguay	131	136	117	7	54	78	97	83	129	100
Sofia-Bulgaria	128	79	95	79	61	138	108	68	73	101
San José-Costa Rica	107	152	108	6	28	135	89	91	153	102
Bilbao-Spain	96	105	85	103	84	86	137	100	92	103
Vigo-Spain	117	117	63	48	123	79	154	124	74	104
A Coruña-Spain	111	113	89	70	128	58	161	120	52	105
Turin-Italy	101	71	106	123	110	92	124	111	34	106
Mexico City-Mexico	94	44	116	147	91	54	37	146	86	107
Minsk-Belarus	150	74	42	46	131	110	102	125	81	108
Guangzhou-China	55	92	121	152	119	124	56	110	27	109
Belgrade-Serbia	130	106	140	31	99	89	84	97	97	110
Doha-Qatar	30	145	46	158	124	117	88	11	126	111
Tbilisi-Georgia	104	125	125	39	100	130	116	108	103	112
Kiev-Ukraine	148	86	157	121	103	6	60	76	83	113
Istanbul-Turkey	87	118	155	124	139	106	18	26	124	114
Shenzhen-China	39	104	135	150	137	143	66	121	32	115
São Paulo-Brazil	155	103	145	90	121	34	28	72	88	116
Bogota-Colombia	124	90	143	62	48	136	68	103	151	117
Almaty-Kazakhstan	146	121	49	100	147	84	152	115	35	118
Naples-Italy	119	89	114	105	144	88	94	136	101	119
Ankara-Turkey	125	100	111	137	127	87	117	112	57	120
Jerusalem-Israel	95	131	139	53	66	128	120	119	141	121
Athens-Greece	135	69	160	61	146	109	52	40	89	122
Saint Petersburg-Russia	137	25	137	125	92	115	61	113	127	123
Ho Chi Minh City-Vietnam	109	150	119	76	133	137	77	127	111	124
Skopje-Macedonia	112	148	133	81	109	122	147	99	117	125
Rio de Janeiro-Brazil	160	94	154	102	77	36	47	88	133	126
Baku-Azerbaijan	141	112	127	60	153	142	135	89	106	127
Kuwait City-Kuwait	93	153	65	142	108	154	118	35	130	128
Medellín-Colombia	132	128	124	71	116	126	113	153	121	129
Rosario-Argentina	158	122	57	114	141	35	144	141	123	130
Lima-Peru	115	111	130	122	86	146	81	143	158	131
Sarajevo-Bosnia and Herzegovina	153	115	151	95	130	69	143	135	62	132

TABLE 11. RANKING BY DIMENSION (CONTINUED)

City	Economy	Human Capital	Social Cohesion	Environment	Governance	Urban Planning	International Outreach	Technology	Mobility and Transportation	Cities in Motion
Tunis-Tunisia	136	146	113	58	129	140	139	149	146	134
Curitiba-Brazil	161	139	123	65	132	116	122	117	109	135
Jakarta-Indonesia	114	133	126	140	114	153	31	132	164	136
Cali-Colombia	139	135	99	80	122	133	153	160	148	137
Brasilia-Brazil	163	138	144	82	125	127	91	142	61	138
Amman-Jordan	145	157	103	115	106	149	138	64	160	139
Quito-Ecuador	157	127	105	88	160	132	107	133	128	140
Guatemala City-Guatemala	144	162	118	44	134	157	93	158	142	141
Novosibirsk-Russia	142	119	128	131	118	141	129	148	138	142
Cape Town-South Africa	143	134	156	117	98	148	76	138	155	143
Manama-Bahrain	90	142	41	159	145	165	151	58	95	144
Santa Cruz-Bolivia	140	143	152	29	158	156	155	150	137	145
Manila-Philippines	121	141	122	153	143	152	39	147	162	146
Salvador-Brazil	164	129	142	86	140	120	134	152	132	147
Casablanca-Morocco	134	164	131	130	159	150	110	102	147	148
Tianjin-China	40	109	134	165	150	139	150	134	115	149
Guayaquil-Ecuador	159	144	104	92	161	144	149	157	152	150
Belo Horizonte-Brazil	162	132	136	120	142	134	136	140	149	151
La Paz-Bolivia	152	147	149	94	148	147	141	162	145	152
Riyadh-Saudi Arabia	85	155	112	164	80	158	128	54	135	153
Santo Domingo-Dominican Republic	97	161	164	145	155	114	125	151	134	154
Rabat-Morocco	147	158	150	112	157	151	158	155	156	155
Johannesburg-South Africa	149	140	161	141	115	145	148	145	143	156
Cairo-Egypt	129	137	158	154	162	119	86	128	159	157
Mumbai-India	127	154	138	156	138	160	57	137	161	158
New Delhi-India	103	151	141	163	149	163	63	156	154	159
Douala-Cameroon	138	156	132	97	164	159	165	163	144	160
Nairobi-Kenya	120	160	162	148	154	155	140	159	163	161
Caracas-Venezuela	165	101	159	129	156	101	82	165	139	162
Kolkata-India	133	165	153	157	151	161	142	161	165	163
Lagos-Nigeria	154	159	163	155	165	162	164	164	157	164
Karachi-Pakistan	118	163	165	161	163	164	163	154	150	165

FIGURE 2. MAP OF CITIES IN THE CIMI RANKING

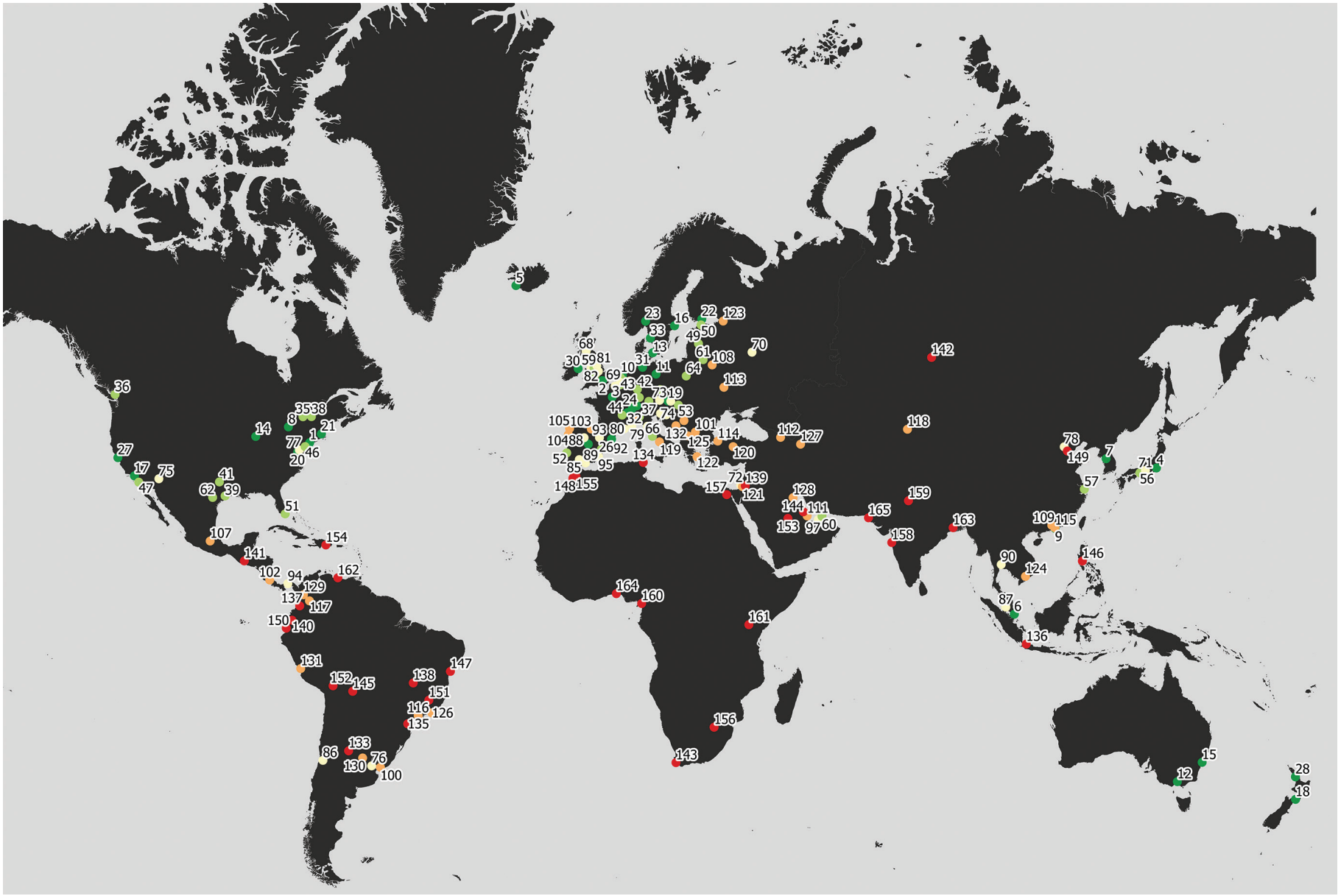


Table 12 shows the top 10 positions in the ranking for each dimension. In this way, we can visualize better the regional representativeness in the various dimensions.

THE ECONOMY

The city that leads the ranking in this dimension is New York (United States), which achieves relatively high levels in all indicators but stands out especially for its high GDP and for the number of publicly traded parent companies. It is worth noting that there are a total of six U.S. cities in the top 10 for this dimension.

SOCIAL COHESION

Helsinki (Finland) is the city with the highest rating in this dimension. It is a city with a low unemployment rate, an equitable distribution of income and the highest percentage of women in positions of responsibility (more than 70%).

Of the top 10 cities in the ranking for this dimension, nine are European.

HUMAN CAPITAL

The city that ranks first in this dimension is London (United Kingdom), which stands out for having the most top-level business schools, as well as for having the highest number of universities. In addition, a high proportion of the population has secondary and higher education and it is a city with a broad cultural offering made up of theaters, museums and art galleries.

Although London leads this dimension, the top 10 contains five U.S. cities, as shown in Table 12.

THE ENVIRONMENT

In this dimension, the cities with the highest positions are Reykjavik (Iceland) and Wellington (New Zealand). They are at the top of the Environmental Performance Index (EPI) and have low levels of PM10 and PM2.5 pollution. Moreover, Reykjavik also stands out for its renewable water sources. This year, two new entries from Central and South America stand out in the top 10 of this ranking: San José and Montevideo.

GOVERNANCE

Bern (Switzerland) is ranked first in this dimension, displaying a good performance in the indexes of corruption perceptions, reserves per capita and number of embassies. Of the top 10 cities in the ranking for this dimension, three are Swiss.

URBAN PLANNING

New York (United States) ranks first in this dimension. It is notable for its very well-developed infrastructure, with a large number of buildings and skyscrapers. It is worth noting that almost 100% of the population has access to adequate sanitation facilities and that the city has a low number of people per household. It is worth mentioning that six North American cities are in the top 10 for this dimension, four of which are Canadian.

INTERNATIONAL OUTREACH

Just as last year, Paris (France) is the top-ranking city for this dimension and London (United Kingdom) is in second place. Paris is the city with the second-highest number of international tourists and ranks fourth in the ranking of cities with the most photos uploaded to Panoramio. It is also the city where the most international conferences and meetings are organized. London, in turn, is the city that attracts a higher number of airline passengers, which is consistent with the fact that it is one of the cities with the largest number of air routes. In addition, both cities stand out for the number of hotels they have.

Of the top 10 cities for this dimension, five are European, two are North American and two are Asian.

TECHNOLOGY

Hong Kong (China) is in the top position of this ranking. This city has a high innovation index, almost 100% of its population have mobile telephones, and it has a high number of wireless access points globally. It also stands out for the number of social media users and the number of mobile phones per capita.

Of the cities that occupy the top 10 positions, three are in the Asia-Pacific region, three are European and two are in the Middle East.

MOBILITY AND TRANSPORTATION

Paris (France) is first in this ranking and is notable for its metro system, the development of its bike-sharing system, its high-speed train and the number of air routes arriving in the city. Six European and three Asian cities can be found in the top 10 positions for this dimension.

TABLE 12. TOP 10 BY DIMENSION

	ECONOMY	HUMAN CAPITAL	SOCIAL COHESION
1	New York-United States	London-United Kingdom	Helsinki-Finland
2	Tokyo-Japan	Los Angeles-United States	Bern-Switzerland
3	Los Angeles-United States	Boston-United States	Berlin-Germany
4	London-United Kingdom	New York-United States	Zurich-Switzerland
5	Stockholm-Sweden	Tokyo-Japan	Basel-Switzerland
6	San Francisco-United States	Washington-United States	Linz-Austria
7	Paris-France	Berlin-Germany	Eindhoven-Netherlands
8	Houston-United States	Paris-France	Melbourne-Australia
9	Dallas-United States	Moscow-Russia	Munich-Germany
10	Chicago-United States	Chicago-United States	Liverpool-United Kingdom

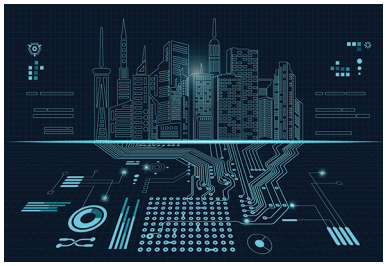
	THE ENVIRONMENT	GOVERNANCE
1	Reykjavik-Iceland	Bern-Switzerland
2	Wellington-New Zealand	Melbourne-Australia
3	Copenhagen-Denmark	Geneva-Switzerland
4	Tallinn-Estonia	Toronto-Canada
5	Riga-Latvia	London-United Kingdom
6	San José-Costa Rica	Helsinki-Finland
7	Montevideo-Uruguay	Los Angeles-United States
8	Stockholm-Sweden	Singapore-Singapore
9	Lisbon-Portugal	Zurich-Switzerland
10	Singapore-Singapore	Ottawa-Canada

TABLE 12. TOP 10 BY DIMENSION

URBAN PLANNING

INTERNATIONAL OUTREACH

	URBAN PLANNING	INTERNATIONAL OUTREACH
1	New York-United States	Paris-France
2	Toronto-Canada	London-United Kingdom
3	Paris-France	New York-United States
4	Vancouver-Canada	Berlin-Germany
5	Chicago-United States	Singapore-Singapore
6	Kiev-Ukraine	Amsterdam-Netherlands
7	London-United Kingdom	Bangkok-Thailand
8	Ottawa-Canada	Vienna-Austria
9	Montreal-Canada	Chicago-United States
10	Hong Kong-China	Melbourne-Australia



TECHNOLOGY

MOBILITY AND TRANSPORTATION

	TECHNOLOGY	MOBILITY AND TRANSPORTATION
1	Hong Kong-China	Paris-France
2	Singapore-Singapore	London-United Kingdom
3	Amsterdam-Netherlands	Seoul-South Korea
4	Dubai-United Arab Emirates	New York-United States
5	New York-United States	Shanghai-China
6	London-United Kingdom	Berlin-Germany
7	Reykjavik-Iceland	Reykjavik-Iceland
8	Sydney-Australia	Munich-Germany
9	Abu Dhabi-United Arab Emirates	Madrid-Spain
10	Seoul-South Korea	Beijing-China

"IN ORDER TO EXECUTE THE STRATEGIC PLANS, IT IS NECESSARY TO ACKNOWLEDGE THAT CITIES CANNOT DO IT ALL ALONE. THE TRANSFORMATION OF A CITY IS NOT AN INDIVIDUAL UNDERTAKING BUT INSTEAD A COLLECTIVE ENDEAVOR, SO COLLABORATION IS ESSENTIAL".
Pascual Berrone & Joan Enric Ricart
"THE FIRST STEP FOR DEVELOPING A STRATEGIC PLAN IS A GOOD DIAGNOSIS, AND THE CIMI IS A TOOL FOR TAKING A QUICK X-RAY OF A CITY'S STRENGTHS AND WEAKNESSES AND FOR IDENTIFYING OTHER CITIES THAT MIGHT SERVE AS A BENCHMARK TO BEGIN THE NECESSARY CHANGE".

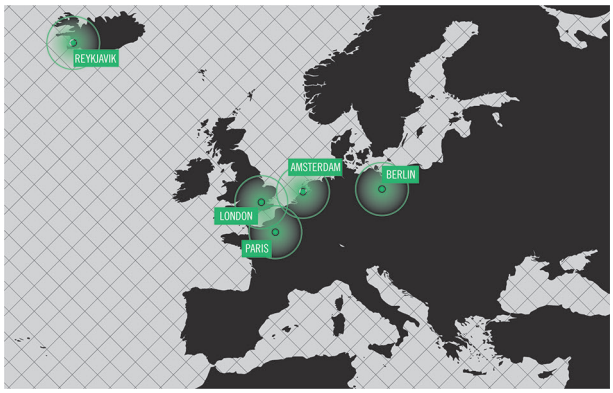
CITIES IN MOTION. REGIONAL RANKING

This section takes into account the ranking according to the geographical region. Below are the regional maps and corresponding tables of the top five cities in each region.

*** Please click on the maps for a larger and more detailed version.**

TOP 5 WESTERN EUROPE

CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
London, United Kingdom	1	1	2	2
Paris, France	2	3	3	3
Reykjavik, Iceland	3	5	5	5
Amsterdam, Netherlands	4	11	11	10
Berlin, Germany	5	10	10	11



London leads the ranking in Europe, while occupying second place in the world ranking. The next highest-ranking cities in Europe are Paris, Reykjavik and Amsterdam. Berlin completes the regional ranking. As seen in the table, four cities in the regional top five are in the top 10 in the overall ranking.

TOP 5 EASTERN EUROPE

CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Prague, Czech Republic	1	43	40	40
Riga, Latvia	2	45	48	49
Tallinn, Estonia	3	40	42	50
Budapest, Hungary	4	50	51	53
Vilnius, Lithuania	5	59	56	61

The eastern Europe list is led by Prague, a city that is also in the top 30 in the dimensions of technology, the environment and international outreach. It is followed by Riga, Tallinn, Budapest and Vilnius.

TOP 5 LATIN AMERICA

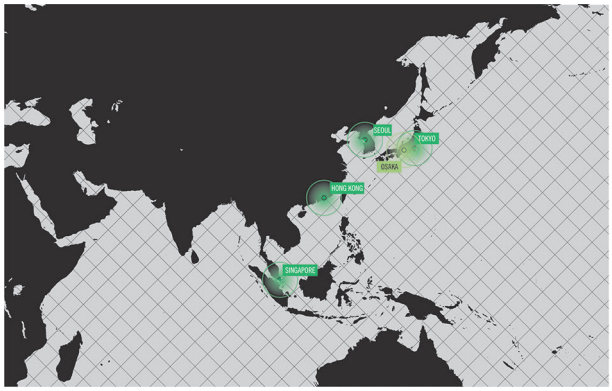
CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Buenos Aires, Argentina	1	84	79	76
Santiago, Chile	2	83	75	86
Panama City, Panama	3	91	99	94
Montevideo, Uruguay	4	88	92	100
San José, Costa Rica	5	102	103	102

Buenos Aires leads the ranking among the best Latin American cities, rising eight places in the past two years. This city is in the top 30 for the dimensions of urban planning, international outreach and governance. In second position in the regional ranking is the city of Santiago, followed by Panama City. The cities of San José and Montevideo complete the ranking. Although the city of Montevideo occupies position 100 in the overall ranking, it stands out in the environment dimension in position 7.

As can be seen in the table and in the map above, most of the Latin American cities are below position 100 in the overall ranking, with the exception of Buenos Aires, Santiago and Panama City. Latin America is one of the regions with the greatest urban concentration on the planet, so the challenges facing these cities are increasingly global, with problems common to all of them.

TOP 5 ASIA-PACIFIC

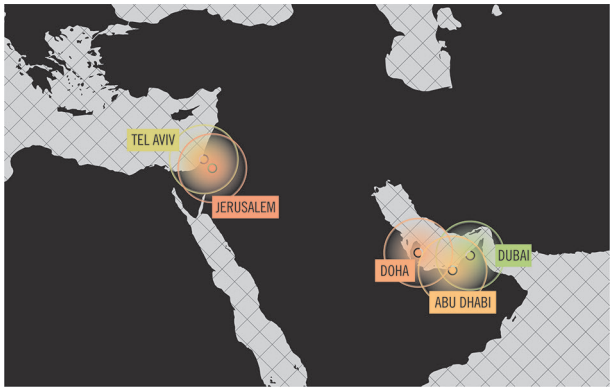
CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Tokyo, Japan	1	4	4	4
Singapore, Singapore	2	6	6	6
Seoul, South Korea	3	7	7	7
Hong Kong, China	4	8	9	9
Osaka, Japan	5	55	55	56



Tokyo leads the ranking in the Asia-Pacific region and is ranked fourth overall, a position it has held for the past two years. Tokyo stands out especially in the economy and human capital dimensions, where it occupies second and fifth places respectively. The second city in the regional ranking is Singapore, which ranks sixth in the overall ranking. This city stands out in technology, governance and the environment, featuring in the top 10 for these dimensions. The cities of Seoul, Hong Kong and Osaka complete the regional ranking. It is interesting to note that, except for Osaka, the other four cities that lead the region are in the top 10 of the overall ranking.

TOP 5 MIDDLE EAST

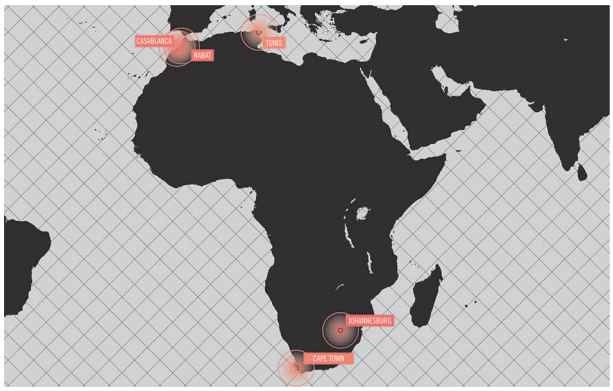
CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Dubai, United Arab Emirates	1	61	69	60
Tel Aviv, Israel	2	74	74	72
Abu Dhabi, United Arab Emirates	3	104	113	97
Doha, Qatar	4	99	111	111
Jerusalem, Israel	5	122	115	121



The Middle East ranking is headed by the city of Dubai, which is in position number 60 of the overall ranking. This city stands out in technology and in international outreach, in positions four and 13 respectively. It is followed by Tel Aviv, with Abu Dhabi, Doha and Jerusalem completing the regional ranking of the five best cities.

TOP 5 AFRICA

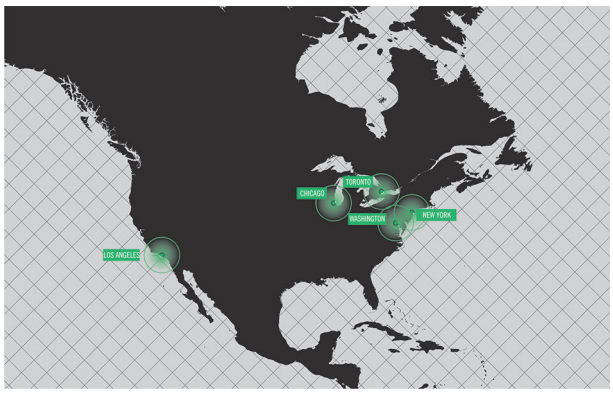
CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Tunis, Tunisia	1	136	137	134
Cape Town, South Africa	2	148	144	143
Casablanca, Morocco	3	150	146	148
Rabat, Morocco	4	156	155	155
Johannesburg, South Africa	5	155	156	156



Africa's ranking is headed by the city of Tunis, followed by the South African city of Cape Town. Completing the list of the top five in the region are Casablanca, Rabat, and Johannesburg. It is worth noting that all of the African cities included in the index are among the lowest positions in the overall ranking.

TOP 5 NORTH AMERICA

CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
New York City, United States	1	2	1	1
Toronto, Canada	2	9	8	8
Chicago, United States	3	13	14	14
Los Angeles, United States	4	14	15	17
Washington, D.C., United States	5	21	17	20



In North America, the ranking is led by New York City, which is also in first position in the overall classification. It is followed by Toronto, which is eighth in the overall ranking. Chicago, Los Angeles, and Washington complete the top five. It should be noted that Toronto is the only city within the regional ranking that is not in the United States.

As can be seen in the table above, North American cities occupy some of the top places in the overall ranking. In the case of the United States, six of the 12 U.S. cities included in the study are among the top 30 in the overall ranking.

TOP 3 OCEANIA

CITY	REGIONAL POSITION	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Melbourne, Australia	1	15	12	12
Sydney, Australia	2	17	13	15
Wellington, New Zealand	3	23	19	18

In Oceania, the ranking is led by Melbourne, which is also in the top 10 in dimensions such as social cohesion, governance and international outreach. Likewise, it is in the top 20 for the dimensions of human capital and urban planning. Sydney occupies second place in the regional ranking and stands out in the dimensions of technology and human capital. Completing the regional ranking is Wellington, which performs especially well in the environment, occupying second place. Likewise, this city is in the top 20 for the dimensions of social cohesion, urban planning, and mobility and transportation.

NOTEWORTHY CASES

This section describes some noteworthy cases. In **Appendix 2** there is a graphical analysis of the 165 cities included in the **CIMI**.

AMSTERDAM

Capital of the Netherlands, this is the country's largest city and a major financial and cultural center, with an international impact. This city is in 10th place in the ranking and fourth in its region. It performs well in all the dimensions and stands out especially in technology, urban planning and international outreach, being in the top 20 for all of those dimensions.

BARCELONA

This is the second best–placed Spanish city, in position 26, just one position behind Madrid. Barcelona performs well in almost every dimension, especially in governance, urban planning, international outreach, technology, and mobility and transportation, where it is in the top 20.

BERN

This is in position 29 in the ranking and is the best-placed Swiss city, ahead of Geneva. It is noteworthy for being first in the governance dimension and second for social cohesion. Bern was among the top 10 cities with the best quality of life in the world in 2003, 2009 and 2011, according to the Mercer Quality of Living ranking.

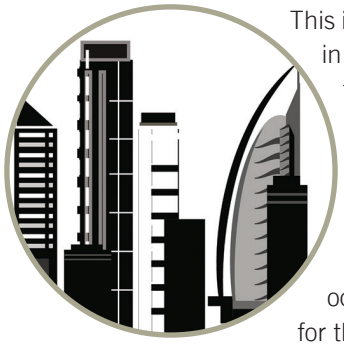
BERLIN

This is in position 11 in the ranking, making it the best-placed German city. It is noteworthy for being among the top positions for the dimensions of social cohesion (position 3), international outreach (position 4), mobility and transportation (position 6), human capital (position 7), and governance (position 14).

BUENOS AIRES

This is the capital and the most populous city of Argentina. It is the most-visited city in South America and has the second highest number of skyscrapers in the region. It is in position 76 in the overall ranking and number one in its region. It is the best-placed city in Latin America, ahead of Santiago de Chile and Panama City. It stands out, at the regional level, in the dimensions of governance, urban planning, and international outreach.

DUBAI



This is the most populous city in the United Arab Emirates. It occupies position 60 in the overall ranking but is in the top position for its region. It stands out especially in technology, where it occupies fourth position for this dimension.

HELSINKI

This is the capital and the most populous city of Finland. Helsinki is the largest political, financial and research center as well as one of the most important cities of northern Europe. Almost 70% of foreign companies that operate in Finland set up in Helsinki or its surroundings. It is in 22nd place in the ranking and is in top place for social cohesion. It also stands out in governance and the environment, where it occupies positions six and 12 respectively.

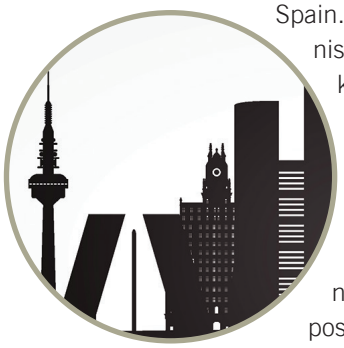
HONG KONG

Hong Kong is a special administrative region of the People's Republic of China, made up of a peninsula and several islands off the Chinese mainland's south coast, in the South China Sea. It is currently one of the most influential cities in Southeast Asia. It is in position 9 in the ranking, especially standing out in the technology dimension, where it occupies first place. It is also high up the ranking for the dimensions of human capital, urban planning and governance.

LONDON

This is the capital and most populous city of the United Kingdom and the largest urban area in the country. It is a nerve center in the field of the arts, commerce, education, entertainment, fashion, finance, the media, research, tourism, and transportation. For this reason, London is in second place in the ranking. It is a city well placed in almost all dimensions. It occupies first place for human capital and is in the top 10 for the dimensions of mobility and transportation, international outreach, the economy, governance, technology, and urban planning. Its worst performance can be seen in the dimension of social cohesion, where it occupies position 68.

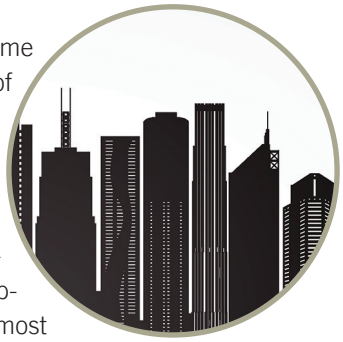
MADRID



This is the capital and most populous city of Spain. It is also the first Spanish city in the overall ranking, occupying position 25. It stands out in the dimensions of mobility and transportation, where it is in ninth place, and in international outreach, occupying position 19.

MELBOURNE

Melbourne is in 12th place in the overall ranking and is the top city in its region. It stands out in the dimensions of governance, in second place, and social cohesion, in eighth place. It is a city with low poverty and crime rates and high levels of health and education, both public and private. It is a city that shows a lot of homogeneity across all the dimensions of the **CIMI**, occupying good positions in almost all of them.



NEW YORK CITY

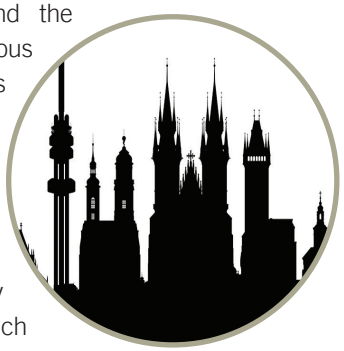
New York City is one of the three largest and most populous urban agglomerations in the world and is the second-largest urban concentration in North America (after Mexico City). For another year, New York City is in the top position in the ranking. It is the world's most important economic center and is therefore ranked first in the economy dimension. It is one of the cities with the highest concentration of skyscrapers in the world and also has one of the largest collections of office buildings and residential towers in the world. For this reason, the city also occupies first place in urban planning. Likewise, it is in the top five for the dimensions of human capital, mobility and transportation, and international outreach.

PARIS

The French capital is the world's most popular tourist destination, as it welcomes more than 42 million foreign tourists a year. It is the most important financial center in Europe, hosting the headquarters of almost half of the largest French companies, as well as the headquarters of 20 of the 100 largest companies in the world. The city of Paris is, together with London, one of the most important financial hubs in Europe. This city is in third place in the overall ranking and is top in the dimensions of international outreach and of mobility and transportation. Likewise, it stands out in urban planning (position 3), the economy (position 7), and human capital (position 8).

PRAGUE

The capital of the Czech Republic is the most populous city in the country and the seventh most populous in central Europe. This city leads the ranking in the eastern Europe region, while it occupies position 40 in the overall ranking. It is in the top 20 for the technology and international outreach dimensions.



REYKJAVIK

This is the capital and the most populous city of Iceland. It is the northernmost capital on the planet and contains half of the population of Iceland. Despite being one of the "smallest cities," it occupies fifth position in the overall ranking and leads the dimension of the environment. It stands out in technology and in mobility and transportation.

TOKYO

Tokyo is the capital of Japan and the most populous urban agglomeration in the world. It is one of the cities with the highest rate of labor productivity. It is fourth in the overall ranking, leading the Asian region. It stands out particularly in the economy dimension in position 2 and in the human capital dimension in position 5. In addition, it is in the top 30 for the dimensions of the environment, international outreach, mobility and transportation, and technology.

EVOLUTION OF THE CITIES IN MOTION INDEX

A city's evolution is vitally important in understanding the focus of its development target. Thus, Table 13 sets out the evolution of the index during the past three years for the top 50 cities in the 2017 **CIMI** ranking.

The results show a great deal of stability in the first 10 positions of the ranking, except in the battle for top position between London and New York, for eighth position between Hong Kong and Toronto, and for 10th position between Berlin and Amsterdam. The rest of the positions have remained constant throughout the 2015-2017 period.

It is worth analyzing the positive evolution of the city of Helsinki, which has climbed nine positions between 2015 and 2017. That progress is reflected especially in its improved performance in the dimension of the economy, social cohesion and human capital. Another city that has performed very well in the period is Milan, which has climbed 13 positions. This is due to its improved performance in the dimensions of the environment and international outreach. In addition, Barcelona has risen eight positions thanks to its improved performance in social cohesion and the economy.

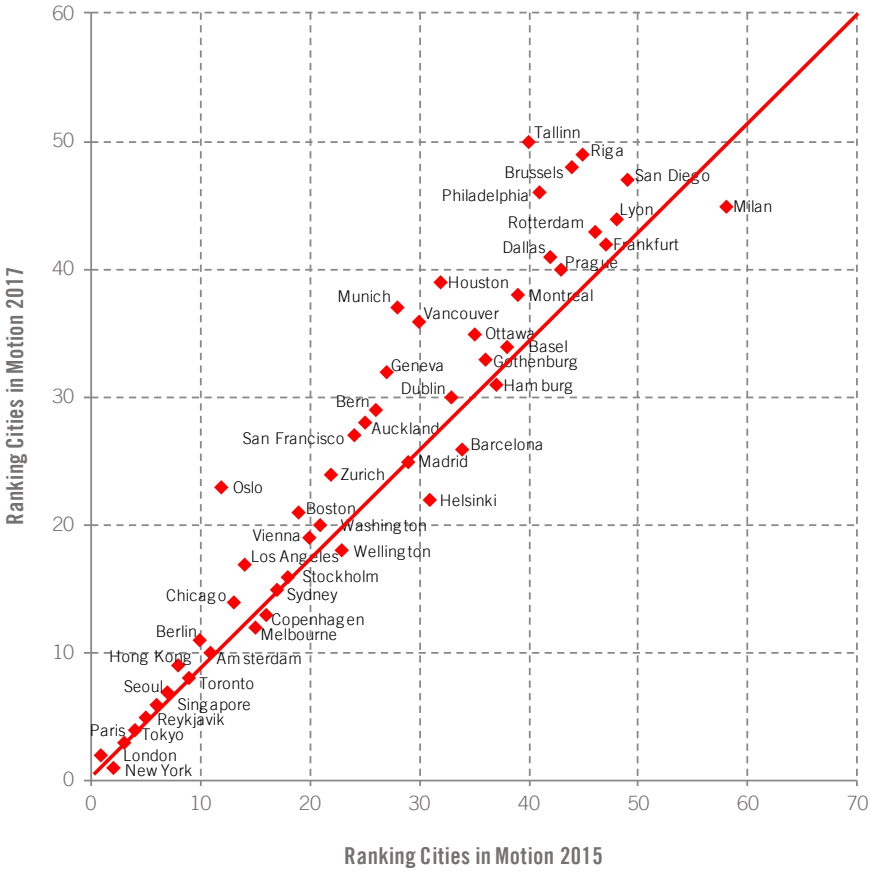
Within the group of cities that have evolved negatively in the period, Houston stands out, dropping seven positions. This is due particularly to its worse performance in the areas of social cohesion and of mobility and transportation. The city of Tallinn has also evolved negatively, falling 10 positions in the period from 2015 to 2017. This is especially due to its poor performance in the dimensions of the economy and international outreach. Lastly, the city of Munich, due to its worse performance in the dimensions of the environment, international outreach, and technology, has fallen nine positions in the period.

TABLE 13. EVOLUTION OF THE INDEX FOR THE TOP 50 CITIES IN THE 2017 RANKING

CITY	2015	2016	2017	2015-2016	2016-2017
New York-United States	2	1	1	1	0
London-United Kingdom	1	2	2	-1	0
Paris-France	3	3	3	0	0
Tokyo-Japan	4	4	4	0	0
Reykjavik-Iceland	5	5	5	0	0
Singapore-Singapore	6	6	6	0	0
Seoul-South Korea	7	7	7	0	0
Toronto-Canada	9	8	8	1	0
Hong Kong-China	8	9	9	-1	0
Amsterdam-Netherlands	11	11	10	0	1
Berlin-Germany	10	10	11	0	-1
Melbourne-Australia	15	12	12	3	0
Copenhagen-Denmark	16	16	13	0	3
Chicago-United States	13	14	14	-1	0
Sydney-Australia	17	13	15	4	-2
Stockholm-Sweden	18	18	16	0	2
Los Angeles-United States	14	15	17	-1	-2
Wellington-New Zealand	23	19	18	4	1
Vienna-Austria	20	20	19	0	1
Washington-United States	21	17	20	4	-3
Boston-United States	19	22	21	-3	1
Helsinki-Finland	31	30	22	1	8
Oslo-Norway	12	24	23	-12	1
Zurich-Switzerland	22	23	24	-1	-1
Madrid-Spain	29	26	25	3	1
Barcelona-Spain	34	29	26	5	3
San Francisco-United States	24	25	27	-1	-2
Auckland-New Zealand	25	31	28	-6	3
Bern-Switzerland	26	27	29	-1	-2
Dublin-Ireland	33	21	30	12	-9
Hamburg-Germany	37	33	31	4	2
Geneva-Switzerland	27	32	32	-5	0
Göteborg-Sweden	36	39	33	-3	6
Basel-Switzerland	38	36	34	2	2
Ottawa-Canada	35	37	35	-2	2
Vancouver-Canada	30	28	36	2	-8
Munich-Germany	28	35	37	-7	-2
Montreal-Canada	39	38	38	1	0
Houston-United States	32	34	39	-2	-5
Prague-Czech Republic	43	40	40	3	0
Dallas-United States	42	44	41	-2	3
Frankfurt-Germany	47	45	42	2	3
Rotterdam-Netherlands	46	43	43	3	0
Lyon-France	48	46	44	2	2
Milan-Italy	58	49	45	9	4
Philadelphia-United States	41	41	46	0	-5
San Diego-United States	49	50	47	-1	3
Brussels-Belgium	44	47	48	-3	-1
Riga-Latvia	45	48	49	-3	-1
Tallinn-Estonia	40	42	50	-2	-8

Figure 3 below shows the positions in 2015 and 2017 of the top 50 cities in the ranking. Those cities that show a positive evolution are below the 45-degree angle formed by the diagonal line, while the cities whose evolution was not positive are above that line. For example, Tallinn, as mentioned previously, displays a clear negative evolution, since it dropped from position 40 in 2015 to position 50 in 2017. In contrast, Milan shows a positive evolution, rising from position 58 to 45 in 2017.

FIGURE 3



CITIES IN MOTION COMPARED WITH OTHER INDEXES

In this section we conduct a comparative study of the **CIMI** and other indexes. Table 14 shows the top 10 cities in the **CIMI** 2017 ranking compared with those in seven other city indexes under consideration. Cities in those indexes are highlighted when they also appear in the **CIMI**.

While the indexes under consideration vary in terms of methodology and indicators, all agree that a city is more powerful, prosperous, and competitive if it manages to develop in its various dimensions, from the economy and finance, via the ease of creating businesses, the quality of life, and the use of high technology, to its cultural importance, which could be measured by how it promotes music and fashion. It can be noted that all of the cities in the **CIMI** frequently appear in some of the other indexes under consideration, with the exception of Reykjavik.

The city of Singapore, which occupies position 6 in the **CIMI**, is in the top 10 of five of the seven other rankings being considered. This city stands out for its high performance in the dimensions of technology, international outreach, the environment and the economy.

The city of Hong Kong, which is ranked ninth in the **CIMI**, occupies the leading positions of four of the seven rankings analyzed. As could be verified through the **CIMI**, this city performs very well in technology, where it occupies the top spot. It also occupies leading positions in urban planning, human capital, governance, and international outreach.

The cities of New York, London, Paris, Tokyo, Seoul and Toronto also appear frequently in other rankings among the 10 most prosperous cities or those with the best quality of life in the world. The only city that does not appear among the top 10 cities considered by other indexes is Reykjavik. This city is often excluded from some rankings that take into account only large cities. Unlike many of the rankings with which it is compared, the **CIMI** takes into account a greater geographical coverage.

None of the cities that make up the top 10 of the **CIMI** are in the top positions of the Quality of Living Ranking (Mercer). However, both Vienna and Copenhagen are in the **CIMI** top 20. It is interesting to note that the top four positions in the Global Cities Index (A.T. Kearney) and the Global Power City Index (Mori Memorial Foundation) coincide exactly with the top four positions in the **CIMI**.

TABLE 14. COMPARISON WITH OTHER INDEXES. TOP 10

Ranking City	ICIM 2017 (IESE)	Global Cities Index 2016 (A.T. Kearney)	Global Financial Centres Index 2017, GFCI (Z/Yen)	Global Power City Index 2017 (MMF)	Quality of Living City Ranking 2017 (Mercer)	Global Liveability Ranking 2017 (The Economist Intelligence Unit)	The Safe Cities Index 2017 (The Economist)	Sustainable Cities Index 2016 (Acardis)
1	New York	New York	London	London	Vienna	Melbourne	Tokyo	Zurich
2	London	London	New York	New York	Zurich	Vienna	Singapore	Singapore
3	Paris	Paris	Hong Kong	Tokyo	Auckland	Vancouver	Osaka	Stockholm
4	Tokyo	Tokyo	Singapore	Paris	Munich	Toronto	Toronto	Vienna
5	Reykjavik	Hong Kong	Tokyo	Singapore	Vancouver	Calgary	Melbourne	London
6	Singapore	Singapore	Shanghai	Seoul	Dusseldorf	Adelaide	Amsterdam	Frankfurt
7	Seoul	Chicago	Toronto	Amsterdam	Frankfurt	Perth	Sydney	Seoul
8	Toronto	Los Angeles	Sydney	Berlin	Geneva	Auckland	Stockholm	Hamburg
9	Hong Kong	Beijing	Zurich	Hong Kong	Copenhaguen	Helsinki	Hong Kong	Prague
10	Amsterdam	Washington	Beijing	Sydney	Basel	Hamburg	Zurich	Munich

CITIES IN MOTION: CITY RANKING BY POPULATION

This section presents a ranking of cities according to their population. To obtain this ranking, the 165 cities of the index were classified according to their population. The cities were grouped by taking into account various sources such as *The Economist* and the United Nations. Table 15 shows the various categories and the number of **CIMI** cities included in each.

TABLE 15 CLASSIFICATION OF CITIES ACCORDING TO THEIR POPULATION

CATEGORY		NUMBER OF CITIES
Smallest cities	Fewer than 600,000	14
Small cities	Between 600,000 and 1 million	12
Medium cities	Between 1 million and 5 million	88
Large cities	Between 5 million and 10 million	22
Megacities	More than 10 million	29

RANKING OF THE "SMALLEST CITIES"

The top five so-called "smallest cities" are headed by Reykjavik, which comes fifth in the overall ranking and third in the Western Europe region. This city stands out in many dimensions despite its size – except in the international outreach dimension, where it occupies position 121. In second place in the ranking of the "smallest cities" is Wellington. This city, together with Reykjavik, also leads the ranking of the environment dimension. The top five are completed by three Swiss cities: Bern, Geneva and Basel, which stand out for their performance in the governance dimension.

TOP 5 CITIES WITH FEWER THAN 600,000 INHABITANTS

CITY	POSITION BY SIZE	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Reykjavik, Iceland	1	5	5	5
Wellington, New Zealand	2	23	19	18
Bern, Switzerland	3	26	27	29
Geneva, Switzerland	4	27	32	32
Basel, Switzerland	5	38	36	34

RANKING OF THE "SMALL CITIES"

The following table shows the top five "small cities," or cities that have a population of between 600,000 and 1 million inhabitants. This ranking is led by Göteborg, followed by Riga. The cities of Vilnius, Bratislava and Nice complete the ranking. Despite not being in the top positions of the overall ranking, these cities stand out – as do the "smallest cities" – for their performance in the environment dimension. All, except for Nice, are in the top 30 for that dimension.

TOP 5 CITIES BETWEEN 600,000 AND 1 MILLION INHABITANTS

CITY	POSITION BY SIZE	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Göteborg, Sweden	1	36	39	33
Riga, Latvia	2	45	48	49
Vilnius, Lithuania	3	59	56	61
Bratislava, Slovakia	4	60	65	67
Nice, France	5	81	80	79

RANKING OF THE "MEDIUM CITIES"

Below are the top five "medium cities" – that is, cities that have between 1 million and 5 million inhabitants. This ranking is led by Amsterdam, followed by Melbourne, Copenhagen, Sydney and Stockholm. These cities are in the top 20 positions of the overall ranking and stand out in almost every dimension.

TOP 5 CITIES WITH BETWEEN 1 MILLION AND 5 MILLION INHABITANTS

CITY	POSITION BY SIZE	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Amsterdam, Netherlands	1	11	11	10
Melbourne, Australia	2	15	12	12
Copenhagen, Denmark	3	16	16	13
Sydney, Australia	4	17	13	15
Stockholm, Sweden	5	18	18	16

RANKING OF THE "LARGE CITIES"

The following shows the ranking of the "large cities" or cities that have between 5 million and 10 million inhabitants. This ranking is led by Singapore, followed by Toronto and Hong Kong. The cities of Berlin and Chicago complete the ranking for this dimension.

TOP 5 CITIES WITH BETWEEN 5 MILLION AND 10 MILLION INHABITANTS

CITY	POSITION BY SIZE	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
Singapore, Singapore	1	6	6	6
Toronto, Canada	2	9	8	8
Hong Kong, China	3	8	9	9
Berlin, Germany	4	10	10	11
Chicago, United States	5	13	14	14

RANKING OF THE "MEGACITIES"

The ranking of the "megacities" includes cities with a population of more than 10 million inhabitants. It is headed by New York, followed by London, Paris, Tokyo and Seoul. These cities occupy the tops positions of the overall ranking and stand out in almost all the dimensions, with the exception of social cohesion and the environment.

TOP 5 CITIES WITH MORE THAN 10 MILLION INHABITANTS

CITY	POSITION BY SIZE	GLOBAL POSITION 2015	GLOBAL POSITION 2016	GLOBAL POSITION 2017
New York City, United States	1	2	1	1
London, United Kingdom	2	1	2	2
Paris, France	3	3	3	3
Tokyo, Japan	4	4	4	4
Seoul, South Korea	5	7	7	7

CITIES IN MOTION: ANALYSIS OF DIMENSIONS IN PAIRS

In this section, the position of cities with respect to two dimensions is analyzed simultaneously. In this way, it is possible to observe whether there is any relationship between the dimensions being compared. Furthermore, cities are analyzed by population, according to the categories discussed in the previous section.

Figure 4 shows the dimensions of the economy on the y-axis and social cohesion on the x-axis. The "smallest cities" perform well in the dimension of social cohesion, as can be seen by their position on the right of the graph. Similarly, many of these cities also perform well in the economy dimension. A large number of "megacities," on the other hand, show relatively good performance in the economy dimension but, in general, very poor performance in the dimension of social cohesion. In the so-called "small," "medium" and "large" cities, there is a direct relationship between both dimensions. As a city improves its performance in the dimension of the economy, it also does so in the dimension of social cohesion. It can also be seen that the Chinese cities – such as Hong Kong, Shenzhen, Beijing and Shanghai – are grouped in the upper left of the graph, indicating good performance in the economy and poor performance in social cohesion.

FIGURE 4

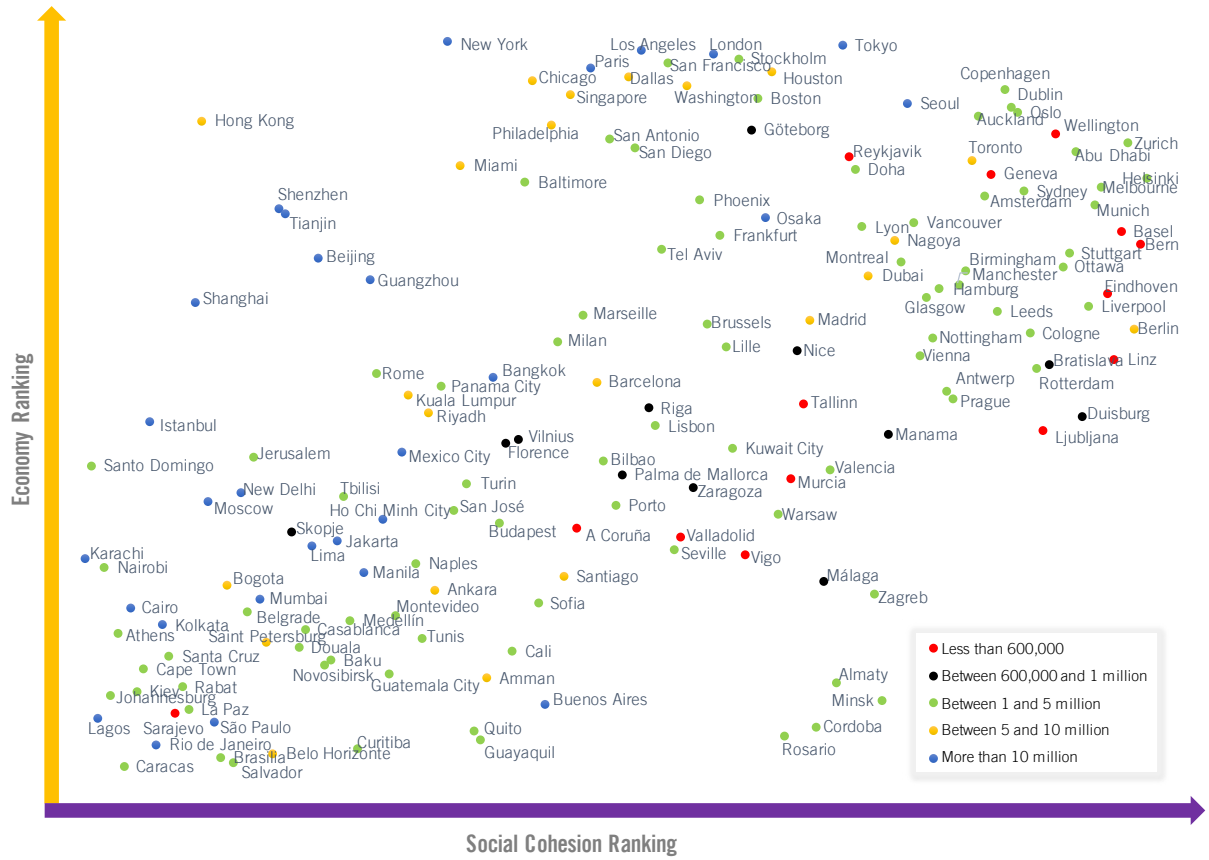


Figure 5 analyzes the dimensions of the economy and the environment. The dimension of the economy is shown on the y-axis and the environment on the x-axis. The Chinese and U.S. cities are found in the upper left of the graph. These cities stand out because they perform well in the area of the economy but poorly in the environment. This could lead to the conclusion that a high level of economic development is detrimental to the well-being of the environment. The cities in the upper right show good performance in both the economy and the environment. This group includes a large number of European cities, such as Stockholm, Copenhagen, Oslo, Göteborg, Reykjavik and Zurich, as well as Asian cities such as Tokyo and Seoul and some from Oceania such as Wellington, Auckland and Sydney. Some of the "smallest cities," such as Reykjavikand Wellington, also stand out in this group. In the lower left corner, there are cities with a poor performance in both dimensions, such as Lagos, Jakarta, Cairo and Johannesburg. Finally, the lower right-hand side shows the cities with low economic development but a good performance in the environment. In this group we find the cities of Vigo, Zagreb, Belgrade, Buenos Aires and Montevideo, among others. A conclusion could be drawn that a high degree of economic development is often related to poor performance in the environmental field if cities do not take ecological criteria into account during that development.

FIGURE 5

Figure 6 shows the dimensions of mobility and transportation and the environment. Here we see at the top of the graph that the "smallest" and "small" cities perform well in mobility and transportation. Some of them also demonstrate good performance in the environment, as is the case with Reykjavik and Wellington. The upper left of the graph shows cities that perform well in mobility and transportation but poorly in the environment dimension. Here we find the Chinese "megacities" and some North American ones such as Phoenix. The upper right-hand side shows the cities that perform well in both dimensions. The smallest cities – such as Basel, Reykjavik, Wellington, Geneva and Bern – are mostly located here. The lower left shows the cities with low degrees of development in mobility and transportation and also in the environment. This group includes cities such as Bogotá, Manila, Mumbai, New Delhi and Kolkata. Finally, the lower right-hand side shows the cities that have a high degree of environmental development but a poor performance in mobility and transportation. In this group we find cities from Central and South America, such as Montevideo, Santa Cruz, San José and Guatemala, as well as cities in the Middle East, such as Jerusalem and Tel Aviv.

FIGURE 6

CITIES IN MOTION: A DYNAMIC ANALYSIS

To assess the growth trends and potential of the different cities, we have created a graph that seeks to capture these aspects. Figure 7 sets out the current position of each of the cities in the **CIMI** index (x-axis) and the trend (y-axis). As a measure to calculate the trend, the change in terms of number of positions the cities in the **CIMI** ranking experienced between 2015 and 2017 has been used. This means that the cities in the top part of the graph are those that have improved in position while those in the bottom part of the graph have dropped position. Consequently, the center of the graph shows the cities that have not experienced significant changes in their position in the years analyzed.

The graph area has been divided into four quadrants according to the type of city (consolidated, challenger, potential, and vulnerable).

The first group, that of consolidated cities (bottom right quadrant), includes cities that, although they have a middle to high overall position, have not experienced any changes throughout the period or may have even lost a few positions. It is made up of cities from different geographical regions: Houston, Philadelphia, Vancouver, Los Angeles, San Francisco, Boston and Chicago in North America; London, Glasgow, Munich, Oslo, Geneva, Bern, Zurich and Oslo in Europe; Auckland in Oceania; and Hong Kong in Asia.

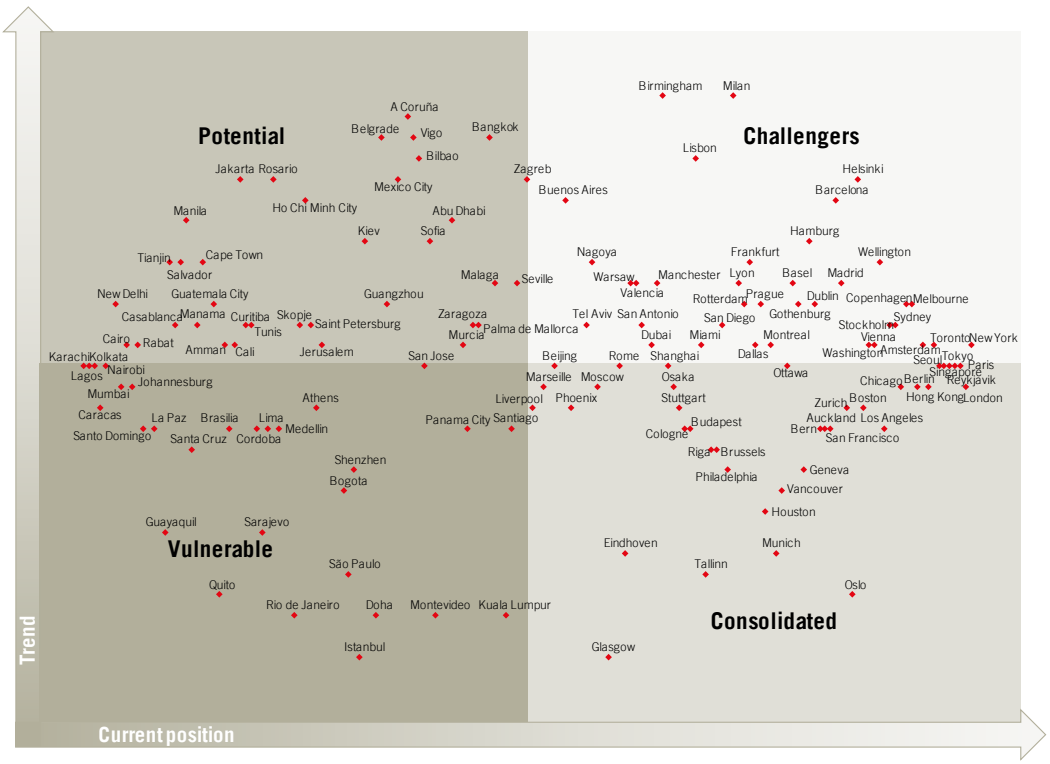
The challenger cities make up the second group displayed in the graph (top right quadrant). It is made up of cities that have improved their positions in the index at a fast rate and are already in the middle to high area of the classification. In this quadrant we can find cities such as Milan, Barcelona, Helsinki and Frankfurt.

The third group is made up of cities that have great potential and that, despite their current position in the middle to low area of the index, are evolving positively at great speed (top left quadrant). In this quadrant, we can find cities such as Kiev, Bilbao and A Coruña; Latin American capitals such as San Salvador and Guatemala City; and Asian cities such as Jakarta, Manila and Ho Chi Minh City.

The last group of cities includes those that are in a vulnerable position (bottom left quadrant). This is a group that is growing at a slower pace than the rest and is in the middle to low position of the classification. It is made up of cities such as Sarajevo, Quito and Rio de Janeiro.

The information presented in Figure 7 is complemented by an analysis of variance of the dimensions concerning the cities. That is, the aim is to understand not only how

FIGURE 7



much they have grown but also how they have done so. To do this, the variation of the different dimensions was calculated for each of the cities that are set out in Figure 8. The cities at the bottom of the graph have similar positions in all dimensions and therefore show a more homogeneous distribution. However, the cities in the top stand out in one or several dimensions while in others they are in a relatively low position. This information, combined with the position of each city, allows us to identify four categories of cities.

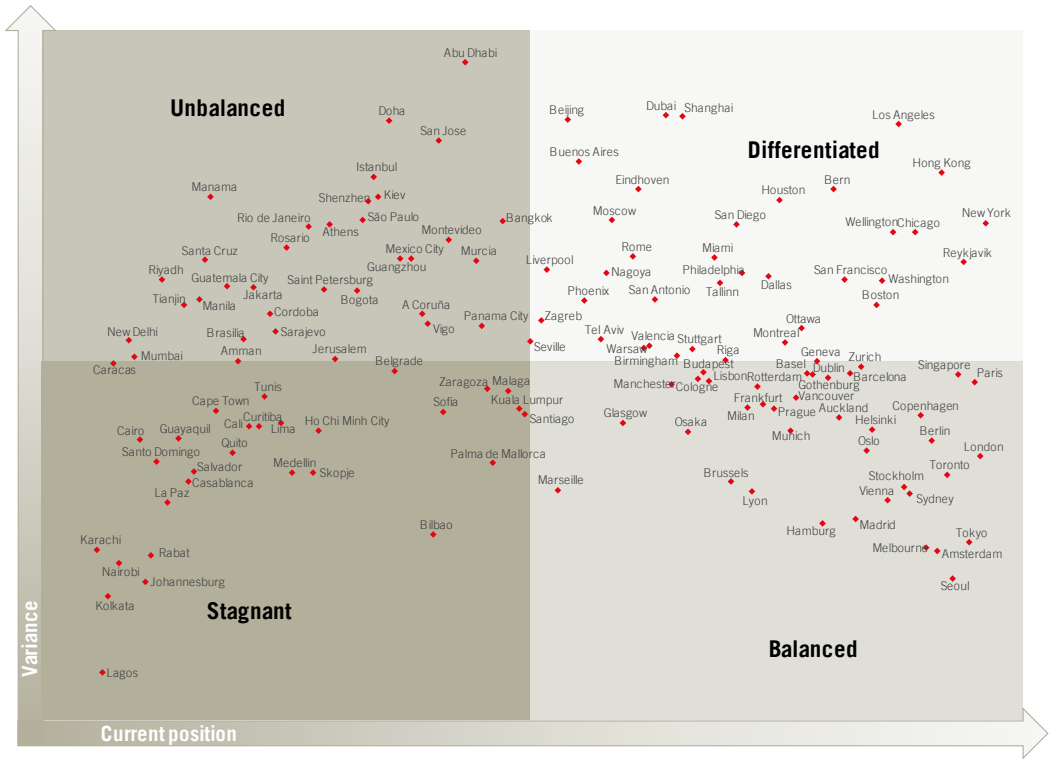
The first category is made up of "balanced" cities (bottom right quadrant) – that is, those that are in the upper middle part of the table and have relatively high values in all the dimensions. This category includes cities such as Stockholm, Brussels, Madrid, Amsterdam, Hamburg, Toronto, Melbourne, Tokyo, Seoul and Sydney.

The second category consists of the "differentiated" cities (top right quadrant) – that is, those cities that are in high positions in the ranking and that get exceptional results in several dimensions but relatively poor ones in others. An example is New York City, which is among the top positions in seven of the nine dimensions but among the lowest positions in social cohesion and the environment. Another example is Los Angeles, which ranks among the top positions in the economy, human capital and governance but in the lowest positions for the environment and for mobility and transportation. In this category we also find cities such as Hong Kong, Shanghai, Houston and Bern.

The third quadrant (top left quadrant) corresponds to the so-called "unbalanced" cities – that is, cities that are in the bottom positions of the ranking but stand out in one dimension in particular. This includes, for example, the cities of Doha, Istanbul and Montevideo, which stand out in a particular dimension despite being below position 100 in most of the dimensions. The city of Montevideo stands out in the environment (position 7), Doha stands out in technology (position 11) and Istanbul stands out in international outreach (position 18). In this category we also find cities such as Manama, Shenzhen, Athens, Rio de Janeiro and Rosario.

In the fourth and final quadrant (bottom left quadrant) are the so-called "stagnant" cities, which achieve poor results in (almost) all the dimensions analyzed. An example is the city of Skopje, which is below position 100 in seven of the nine dimensions. In this category we also find cities such as Lagos, Kolkata and Nairobi.

FIGURE 8



RECOMMENDATIONS AND CONCLUSIONS

The **CIMI** synthetic index allows us, through an objective calculation methodology, to compile a ranking of cities taking into account various aspects. The different dimensions analyzed offer a broad and holistic vision of what a city represents, while allowing greater understanding of its composition and its evolution over time.

The results of the index and our experience of using it to assess different cities allow us to make the following recommendations and reach some significant conclusions:

- **Size matters – although not so much.** This new edition of the **CIMI** makes clear that large cities occupy leading positions in the ranking. The first 10 positions are held by megacities such as New York, London, Paris, Tokyo and Seoul. However, among the top positions some medium-sized cities stand out such as Amsterdam, Melbourne and Copenhagen and even some small cities, as in the cases of Reykjavik and Wellington. These results show that size is not a prerequisite for achieving top positions in the ranking.

- **Finding the right balance is a complex (and permanent) process.** The report's dynamic analysis indicates that only a select number of cities are capable of doing well in all the dimensions. (Cities such as Amsterdam, Seoul and Melbourne stand out.) Many cities struggle to balance their performance across different dimensions but often lose that battle. For example, when analyzing the relationship between mobility and the environment, we can see how several Chinese cities perform relatively well in their mobility and transportation model but fail in the environmental dimension. These cities could use as benchmarks other cities in the region (such as Seoul), which are able to perform well in both dimensions, and identify practices applicable to their situation. Something similar comes to light when studying the relationship between the economy and social cohesion. It can be observed here that there are many cities that have high economic levels (in average terms) but at the same time are more inequitable and unequal. This aspect, which seems prevalent in large cities (such as Hong Kong, New York, Los Angeles and London), must be managed properly as it can lead to tensions and conflicts between different strata in society. To do so, it is essential to identify where the "trade-offs" are and to look for creative ways to resolve them. Undoubtedly, one of the great challenges for cities is to transform themselves into urban centers that are simultaneously prosperous, equitable and inclusive. This goal is essentially a permanent and long-term process.

- **Need for an overview.** Related to the previous point, the **CIMI** makes clear that it is not enough to be good in only one dimension. There are cities that are at the top of the ranking in some dimensions. This is the case of Montevideo, Bangkok, Kiev and Doha, which do relatively well in the dimensions of the environment, international outreach, urban planning, and technology respectively but in the overall ranking are located in positions 100, 90, 113, and 111. These are the cities that we have called "unbalanced" in the analysis of variance. The recommendation for these cities is that, if they seek to play in the big leagues, they should be capable of reaching acceptable minimums in the dimensions as a whole. This message must also reach those cities that understand technology as the main (or only) ingredient of a smart city and do not take into account other critical dimensions that define the urban situation. If they do not see the whole picture, it will be difficult for them to become smart.

- **The need for a long-term view.** Cities need to define their identity and establish a strategic plan. One of the most important (and most difficult) questions a city has to ask itself is: What kind of city do you want in the future? The answer to this question will not only define the identity of the city but also set out the path of transformation that it must travel to achieve that identity. That is, it must consider what its strategic plan will be. A sound strategic plan will prevent changes that veer away from the city's identity as circumstances or governments change. Strategic plans must be unique and individual for each city. This means that cities must escape the one-size-fits-all approach. The **CIMI** makes clear that there is no single model of success. The cities that top the ranking are not identical but prioritize various dimensions. (See the graphical analysis appendix.) There are various ways through which a city can succeed in getting to the top of the index.

- **The first step is a good diagnosis.** One of the first activities in any strategic definition is to understand the place in which we find ourselves. In this regard, the **CIMI** can be used as a diagnostic tool to carry out a first assessment of the current status of the city in the different dimensions of our model. The **CIMI** allows a quick X-ray to be taken of the cities, identifying their strengths and pointing out places where there is room for improvement.

- **The benchmark as the beginning of change.** The ability to compare 165 cities across nine different dimensions allows us to identify those that perform best in the different areas of the city. In this sense, cities that find themselves lagging behind or stagnant in one or more dimensions can study the best cities in each category to identify the best practices that allow them to perform better. This comparison will allow cities to start moving in the right direction. That said, it must be borne in mind that, while the challenges facing cities are global, their effects are local. Therefore, the benchmark should serve as a source of inspiration rather than as a road map for action. In this regard, IESE Cities in Motion has produced a series of books – available on Amazon – that identify good practices across the different dimensions and we invite readers to read them.

- **The CIMI is not a "beauty contest."** It has surprised us how many cities included in the index are more concerned about their position in the ranking than the analysis that can be derived from it. Our perspective is that the value of the **CIMI** lies not only in its ability to identify strengths and weaknesses but also in its temporal component, which enables identification of the direction in which each city is moving. In this regard, our recommendation to urban managers is that they pay more attention to the trend (dynamic analysis) than to the position.

- **Collaboration as the cornerstone of success.** Our experience from **IESE Cities in Motion** and the associated platform **PPP for Cities** (www.pppcities.org) tells us that the cities that do best in the ranking understand fully that the challenges facing cities are too big to be tackled individually. Collaboration is needed between different social partners, whether these be public, private, educational institutions, or nonprofit organizations. This collaboration can take on various formats (from PPP to collaborative economy structures) but they are essential for achieving long-term success. The notion of collaboration and cooperation should be extended within city councils themselves, where there are often "silos" that prevent people from seeing the relationships and the possible synergies that can occur among the different dimensions of our conceptual model. In addition, collaboration must be fluid between residents and the administration because otherwise any solutions that might be adopted will not be efficient when it comes to responding to the real needs of the community. Finally, we ask that cities collaborate with each other, especially those that, in addition to their proximity, share infrastructures and services. Collaboration will make them more efficient urban systems.

- **There are many good cities but the perfect city does not exist.** It is very difficult for a city to maximize all the dimensions. Even those cities in the top positions of the rankings have weak points. For example, cities such as London and New York have a long way to go in the social cohesion dimension. These cities have been classified as *"differentiated"* cities and we recommend that they make the most of the advantages they have in the dimensions where they are leaders in order to progress in the positions where they are lagging behind. For example, a city can make the most of its technological leadership to improve its environmental dimension. In addition, for the cities that we have classified as *"balanced,"* the main recommendation is that they should not rest on their laurels. Despite their more harmonious growth, they still have room for improvement.

- **Change is slow for most cities.** While our temporal analysis of the **CIMI** indicates that there are cities capable of making great progress in a relatively short time and of moving to higher positions quickly (Milan, A Coruña, Birmingham), in general it shows us that, for most of the cities, a city's position in the ranking have not changed significantly from one year to the next. This is due, to a large extent, to the time that projects of any magnitude need to crystallize. Therefore, when seeking to generate changes needed to become smart and sustainable, cities should adopt long-term policies as soon as possible, especially those cities that are the worst placed and that we have called *"stagnant"* in our analysis. There are many cities that still have problems when it comes to dealing with the major challenges of cities, including: the lack of collaboration between public and private bodies, civic institutions and the public; the impossibility of promoting new business models that provide financing for new businesses; and a shortsighted vision of smart cities.

The urbanization process is one of the most significant challenges of the 21st century. As the world population moves toward cities, existing problems grow and new ones are generated that, in addition, are influenced profoundly by the globalization process. This trend means a closer relationship between global dynamics and cities, generating local impacts: effects on the economy, demographics, social divisions or environmental impacts.

Despite these challenges, cities and their leaders should understand the positive aspect that cities have. From our perspective, the city offers a much more delimited sphere of action, which enables work to be done more directly for people's benefit. However, urban managers must take a step back and analyze their problems, try to discover what other cities do, and learn what good practices are being carried out elsewhere in the world. The day-to-day management of a city makes it difficult for cities to ask themselves how to promote the positive effects of the urbanization process and how to reduce the negative ones. That is why, from the IESE Cities in Motion platform, we aim to create awareness and generate innovative tools to achieve smarter governments. With this index, we hope to have contributed to this goal.

APPENDIX 1. INDICATORS

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
1	Higher education	Proportion of population with secondary and higher education.	Human capital	Euromonitor
2	Business schools	Number of business schools (top 100).	Human capital	Financial Times
3	Movement of students	International movement of higher-level students. Number of students.	Human capital	UNESCO
4	Universities	Number of universities in the city that are in the top 500.	Human capital	QS Top Universities
5	Museums and art galleries	Number of museums and art galleries per city.	Human capital	OpenStreetMap
6	Schools	Number of public or private schools per city.	Human capital	OpenStreetMap
7	Theaters	Number of theaters per city.	Human capital	OpenStreetMap
8	Expenditure on leisure and recreation	Expenditure on leisure and recreation per capita.	Human capital	Euromonitor
9	Expenditure on leisure and recreation	Expenditure on leisure and recreation. Expressed in millions of U.S. dollars at 2014 prices.	Human capital	Euromonitor
10	Ratio of deaths	Ratio of death per 100,000 inhabitants.	Social cohesion	Euromonitor
11	Crime rate	Crime rate.	Social cohesion	Numbeo
12	Health	Health index.	Social cohesion	Numbeo
13	Unemployment	Unemployment rate (number of unemployed out of the workforce).	Social cohesion	Euromonitor
14	Gini index	The Gini index varies from 0 to 100, with 0 being a situation of perfect equality and 100 that of perfect inequality.	Social cohesion	Euromonitor
15	Price of property	Price of property as percentage of income.	Social cohesion	Numbeo
16	Ratio of female workers.	Ratio of female workers in the public administration.	Social cohesion	International Labour Organization
17	Global Peace Index	The Global Peace Index is an indicator that measures the peacefulness and the absence of violence in a country or region. The bottom-ranking positions correspond to countries with a high level of violence.	Social cohesion	Institute for Economics and Peace
18	Hospitals	Number of public and private hospitals and health centers per city.	Social cohesion	OpenStreetMap
19	Happiness index	Happiness index of a country. The highest values on the index indicate countries that have a higher degree of overall happiness.	Social cohesion	World happiness index
20	Global Slavery Index	Ranking that considers the proportion of people in a situation of slavery in the country. The countries occupying the top positions in the ranking are those with the highest proportion of the population in a situation of slavery.	Social cohesion	Walk Free Foundation

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
21	Government response to situations of slavery	This variable measures how the government deals with situations of slavery in the country. The top positions in the ranking indicate countries that have a more effective and comprehensive response to slavery.	Social cohesion	Walk Free Foundation
22	Terrorism	Number of terrorist acts of vandalism by city in the previous three years.	Social cohesion	Global Terrorism Database, University of Maryland
23	Productivity	Labor productivity calculated as GDP per working population (in thousands).	Economy	Euromonitor
24	Time required to start a business	Number of calendar days needed so a business can operate legally.	Economy	World Bank
25	Ease of starting a business	Ease of starting a business. Top positions in the ranking indicate a more favorable regulatory environment for creating and operating a local company.	Economy	World Bank
26	Headquarters	Number of headquarters of publicly traded companies.	Economy	Globalization and World Cities (GaWC)
27	Motivation for early-stage entrepreneurial activity	Percentage of people involved in total entrepreneurial activity (TEA) who are motivated by an opportunity for improvement, divided by the percentage of TEA motivated by need. Total entrepreneurial activity (TEA): new entrepreneurs or owners/managers of a new business.	Economy	Global Entrepreneurship Monitor
28	Growth forecast	Forecast of annual GDP growth rate.	Economy	Euromonitor
29	GDP	Gross domestic product in millions of U.S. dollars at 2014 prices.	Economy	Euromonitor
30	GDP per capita	Gross domestic product per capita at 2014 prices.	Economy	Euromonitor
31	Reserves	Total reserves in millions of current U.S. dollars. Estimate at city level according to the population.	Governance	World Bank
32	Reserves per capita	Reserves per capita in millions of current U.S. dollars.	Governance	World Bank
33	Embassies	Number of embassies per city.	Governance	OpenStreetMap
34	ISO 37120 certification	This establishes whether or not the city has ISO 37120 certification. Certified cities are committed to improving their services and quality of life. Variable coded from 0 to 6. Cities that have been certified for the longest time have the highest value. The value 0 is for cities without certification.	Governance	World Council on City Data (WCCD)
35	Research centers	Number of research and technology centers per city.	Governance	OpenStreetMap

NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
36	Strength of legal rights	The strength of legal rights index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate access to loans. The values go from 0 = low to 12 = high, where the highest ratings indicate that the laws are better designed to expand access to credit.	Governance	World Bank
37	Corruption perceptions	Corruption perceptions index. Countries with values close to 0 are perceived as very corrupt and those with an index close to 100 are perceived as very transparent.	Governance	Transparency International
38	Open data platform	This describes whether the city has an open data system.	Governance	CTIC Foundation and Open World Bank
39	E-Government Development Index	The E-Government Development Index (EGDI) reflects how a country is using information technology to promote access and inclusion for its people.	Governance	United Nations
40	Democracy	Ranking where the countries in the highest positions are those considered more democratic.	Governance	The Economist
41	Government buildings	Number of government buildings and premises in the city.	Governance	OpenStreetMap
42	CO_2 emissions	Carbon dioxide emissions that come from the burning of fossil fuels and the manufacture of cement. Measured in kilotons (kt).	The environment	World Bank
43	CO_2 emission index	CO_2 emission index.	The environment	Numbeo
44	Methane emissions	Methane emissions that arise from human activities such as agriculture and the industrial production of methane. Measured in kt of CO_2 equivalent.	The environment	World Bank
45	Access to the water supply	Percentage of the population with reasonable access to an appropriate quantity of water resulting from an improvement in the water supply.	The environment	World Bank
46	PM2.5	PM2.5 measures the number of particles in the air whose diameter is less than 2.5 µm. Annual mean.	The environment	World Health Organization
47	PM10	PM10 measures the number of particles in the air whose diameter is less than 10 µm. Annual mean.	The environment	World Health Organization
48	Pollution	Pollution index.	The environment	Numbeo
49	Environmental performance index	This measures environmental health and ecosystem vitality. Scale from 1 (poor) to 100 (good).	The environment	Yale University
50	Renewable water resources	Total renewable water sources per capita.	The environment	FAO

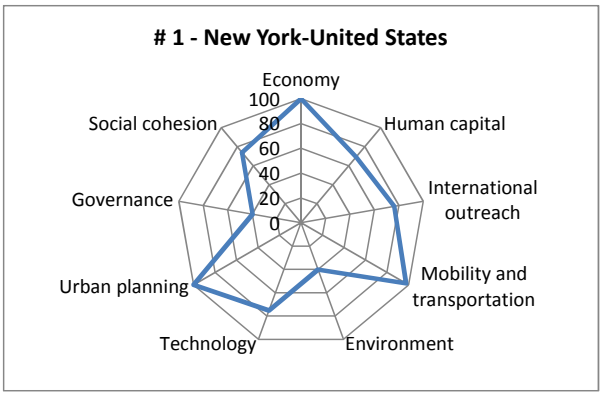
NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
51	Future climate	Percentage of summer temperature increase in the city forecast for 2100 if carbon pollution continues to increase.	The environment	Climate Central
52	Solid waste	Average amount of municipal solid waste (garbage) generated annually per person (kg/yr).	The environment	Waste Management for Everyone
53	Traffic index	The traffic index is estimated by considering the time spent in traffic and the dissatisfaction this generates. It also includes estimates of CO_2 consumption and the other inefficiencies of the traffic system.	Mobility and transportation	Numbeo
54	Inefficiency index	The inefficiency index is an estimate of the inefficiencies in traffic. High values represent high rates of inefficiency in driving, such as long journey times.	Mobility and transportation	Numbeo
55	Index of time spent commuting to work	Index of time based on how many minutes it takes to commute to work.	Mobility and transportation	Numbeo
56	Bike sharing	The bicycle-sharing system shows the automated services for the public use of shared bicycles that provide transport from one location to another within a city. The indicator varies between 0 and 8 according to how developed the system is.	Mobility and transportation	Bike-Sharing World Map
57	Metro length	Length of the metro system per city.	Mobility and transportation	Metrobits.org
58	Metro stations	Number of metro stations per city.	Mobility and transportation	Metrobits.org
59	Flights	Number of arrival flights (air routes) in a city.	Mobility and transportation	OpenFlights
60	Gas stations	Number of gas stations per city.	Mobility and transportation	OpenStreetMap
61	High-speed train	Binary variable that shows whether the city has a high-speed train or not.	Mobility and transportation	OpenRailwayMap
62	Bicycles for rent	Number of bike-rental or bike-sharing points, based on docking stations where they can be picked up or dropped off.	Urban planning	OpenStreetMap
63	Percentage of the population with access to sanitation facilities	Percentage of the population with at least sufficient access to facilities for the disposal of excreta that can efficiently avoid the contact of humans, animals and insects with excreta.	Urban planning	World Bank
64	Number of people per household	Number of people per household. Occupancy by household is measured compared to the average. This makes it possible to estimate if a city has overoccupied or underoccupied households.	Urban planning	Euromonitor
65	High-rise buildings	Percentage of buildings that are considered high-rises. A high-rise is a building of at least 12 stories or 35 meters (115 feet) high.	Urban planning	Skyscraper Source Media
66	Buildings	The buildings variable is the number of completed buildings in the city. This includes structures such as high-rises, towers and smaller buildings but excludes other diverse structures and buildings in different states of completion (in construction, planned, etc.).	Urban planning	Skyscraper Source Media

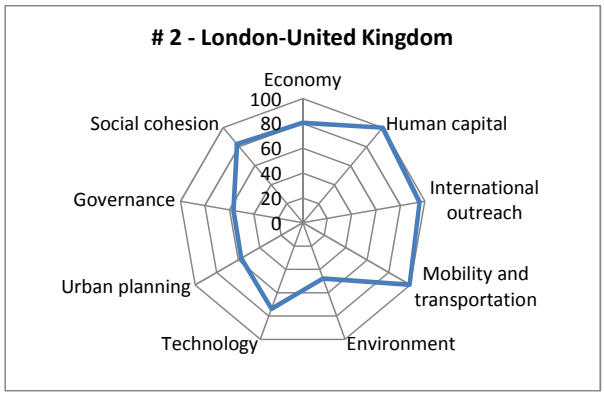
NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
67	McDonald's	Number of McDonald's restaurants per city.	International outreach	OpenStreetMap
68	Airports	Number of points where flight operations take place within a 40 km radius from the latitude and longitude defining the center of the city. It includes airports, aerodromes, airfields, and landing strips whether international, private, military or otherwise. Also included are the buildings used for processing passengers and cargo (terminals).	International outreach	OpenStreetMap
69	Number of passengers per airport	Number of passengers per airport in thousands.	International outreach	Euromonitor
70	Sightsmap	Ranking of cities according to the number of photos taken in the city and uploaded to Panoramio (community for sharing photographs online). The top positions correspond to the cities with the most photographs.	International outreach	Sightsmap
71	Number of conferences and meetings	Number of international conferences and meetings that take place in a city.	International outreach	International Congress and Convention Association
72	Hotels	Number of hotels per capita.	International outreach	OpenStreetMap
73	Twitter	Registered Twitter users in the city. This is part of the "social media" variable.	Technology	Tweet Map
74	LinkedIn	Number of registered users in the city. This is part of the "social media" variable.	Technology	LinkedIn
75	Facebook	Number of people who are currently registered in the city. Facebook is part of the "social media" variable.	Technology	Facebook
76	Mobile phones	Number of mobile phones in the city. Taken at the country level.	Technology	International Telecommunication Union
77	Wi-Fi hot spot	Number of wireless access points globally. These represent the options there are in the city for connecting to the Internet.	Technology	Wifi map app
78	Apple Store	Number of Apple Stores per city.	Technology	OpenStreetMap
79	Innovation index	The city's innovation index. Valuation of 0 = no innovation to 60 = a lot of innovation.	Technology	Innovation Cities Program
80	Landline subscriptions	Number of landline subscriptions per 100 inhabitants.	Technology	International Telecommunication Union

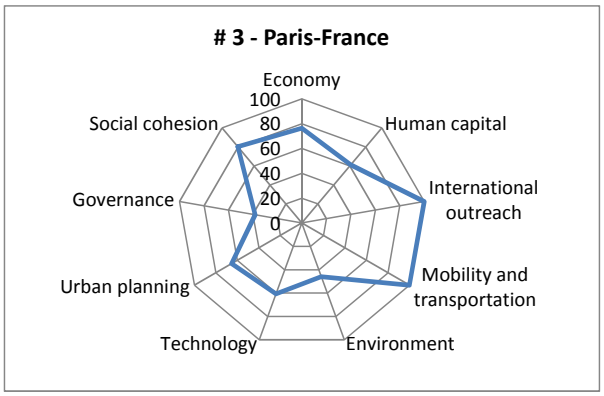
NO.	INDICATOR	DESCRIPTION / UNIT OF MEASUREMENT	DIMENSION / CLUSTER	SOURCE
81	Broadband subscriptions	Broadband subscriptions per 100 inhabitants.	Technology	International Telecommunication Union
82	Internet	Percentage of households with access to the Internet.	Technology	Euromonitor
83	Mobile telephony	Percentage of households with mobile phones in the city.	Technology	Euromonitor
84	Disposable income	Disposable income (annual average). Decile 1. Expressed in U.S. dollars.	City cluster	Euromonitor
85	Disposable income	Disposable income (annual average). Decile 2. Expressed in U.S. dollars.	City cluster	Euromonitor
86	Disposable income	Disposable income (annual average). Decile 5. Expressed in U.S. dollars.	City cluster	Euromonitor
87	Disposable income	Disposable income (annual average). Decile 7. Expressed in U.S. dollars.	City cluster	Euromonitor
88	Disposable income	Disposable income (annual average). Decile 9. Expressed in U.S. dollars.	City cluster	Euromonitor
89	Population	Number of inhabitants.	City/country cluster	Euromonitor
90	Percentage of population employed	Percentage of population employed.	Country cluster	Euromonitor
91	Expenditure on education per inhabitant	Expenditure on education per inhabitant. Expressed in millions of U.S. dollars at 2015 prices.	Country cluster	Euromonitor
92	Expenditure on medical and health services per inhabitant	Expenditure on medical and health services per inhabitant. Expressed in millions of U.S. dollars at 2015 prices.	Country cluster	Euromonitor
93	Expenditure on hospitality and catering services per inhabitant	Expenditure on hospitality and catering services per inhabitant. Expressed in millions of U.S. dollars at 2015 prices.	Country cluster	Euromonitor
94	Expenditure on housing per inhabitant	Expenditure on housing per inhabitant. Expressed in millions of U.S. dollars at 2015 prices.	Country cluster	Euromonitor

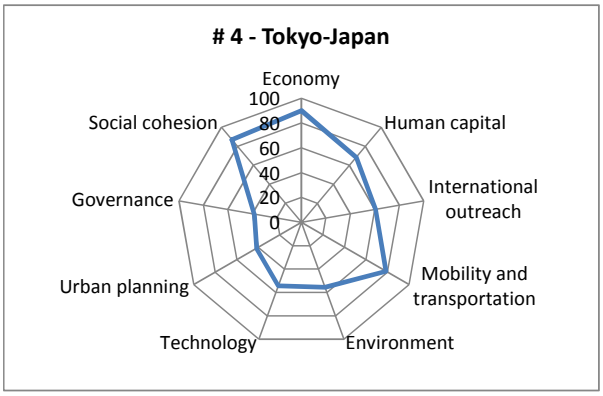
APPENDIX 2. GRAPHICAL ANALYSIS OF THE PROFILES OF 165 CITIES

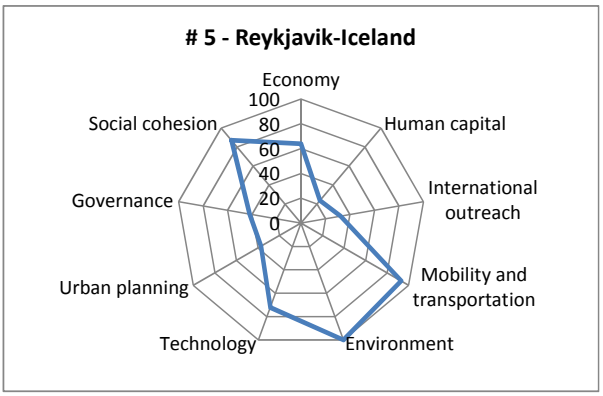
Below is a graphical analysis of the 165 cities included in the **CIMI**, based on the nine key dimensions. These radar charts aim to facilitate interpretation of each city's profile by identifying the values of the various dimensions. At the same time, they enable comparisons of two or more cities at a glance. The charts are sorted by ranking.

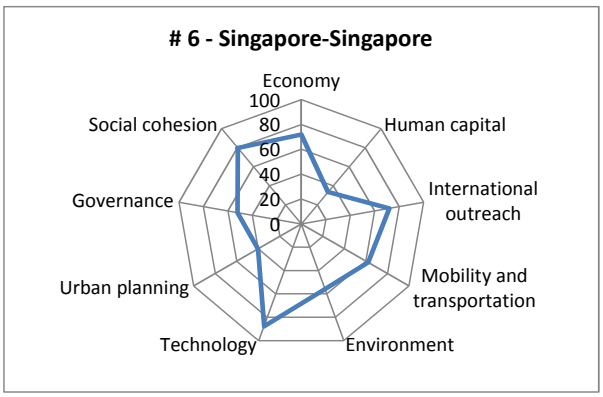


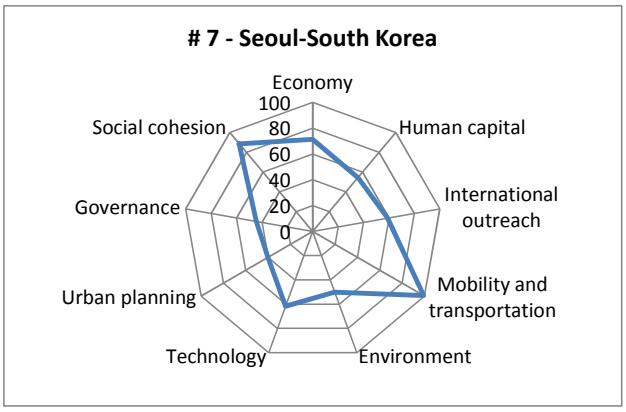


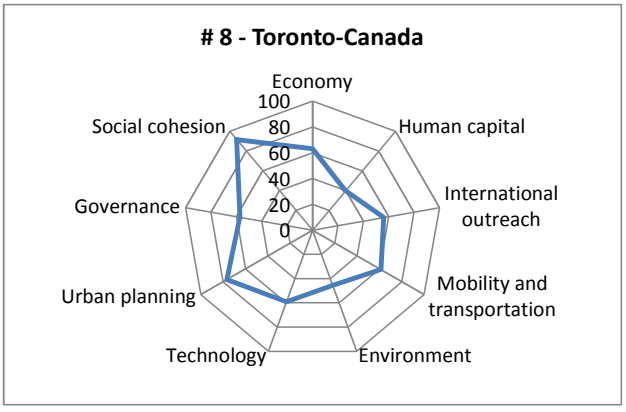


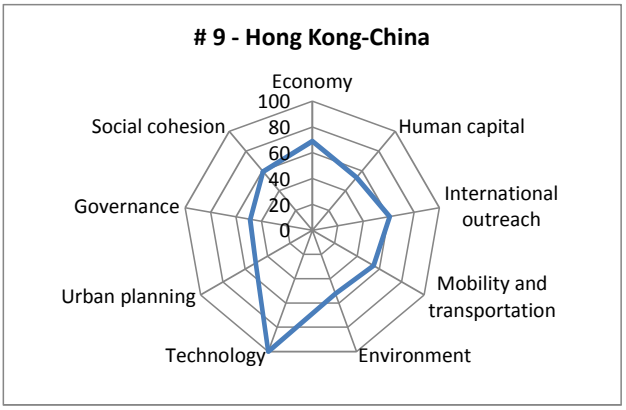


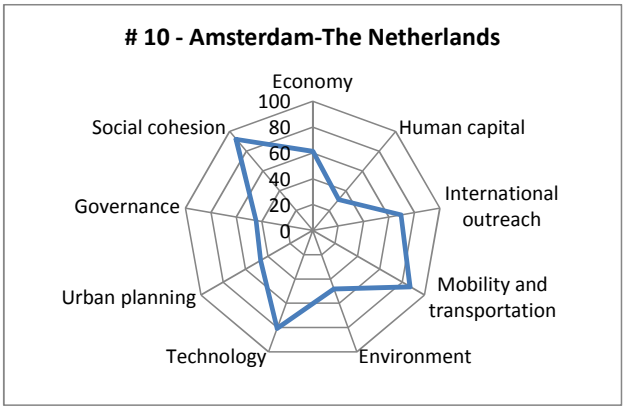


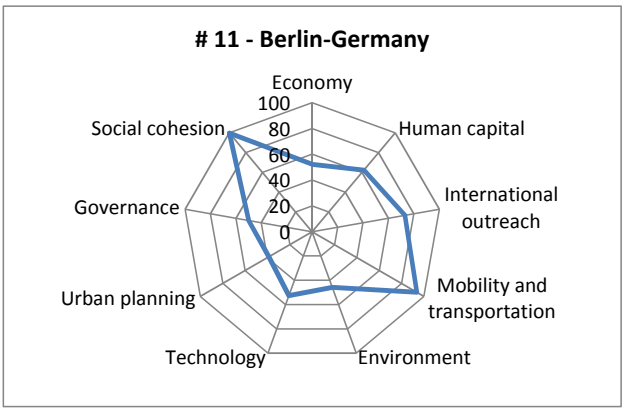


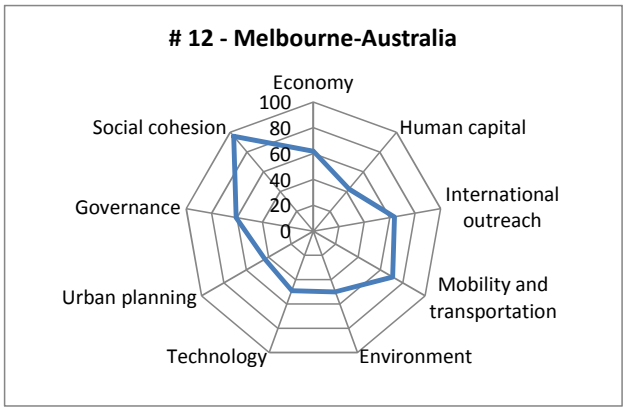

7 - Seoul-South Korea
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

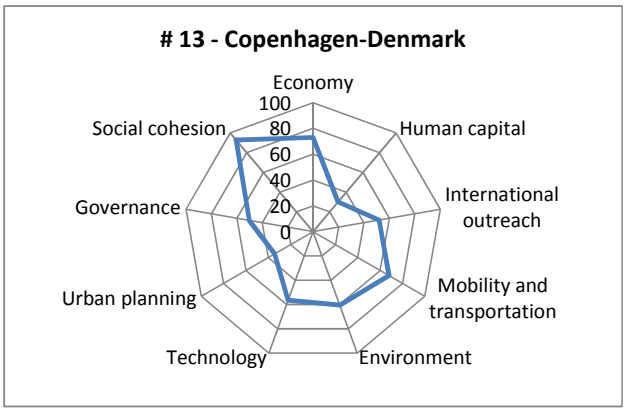

8 - Toronto-Canada
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

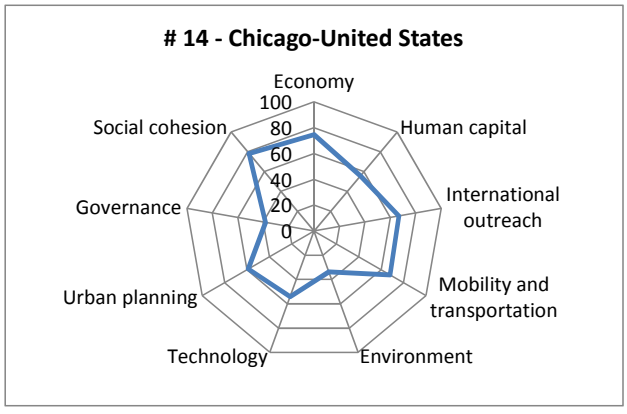

9 - Hong Kong-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

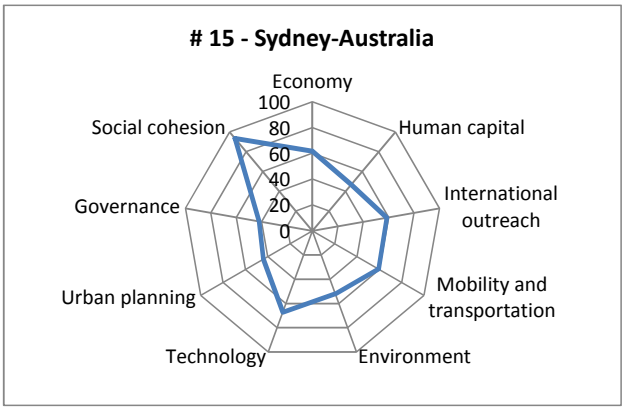

10 - Amsterdam-The Netherlands
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

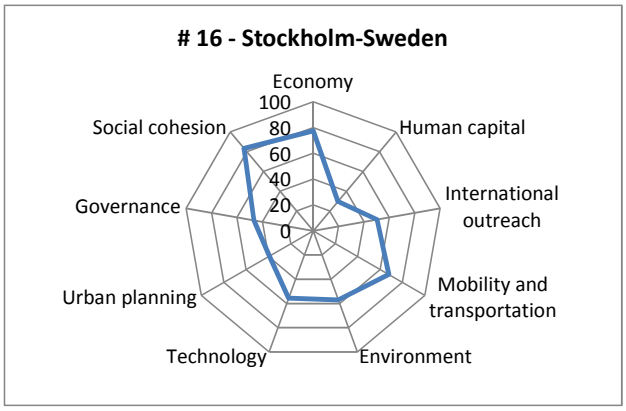

11 - Berlin-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

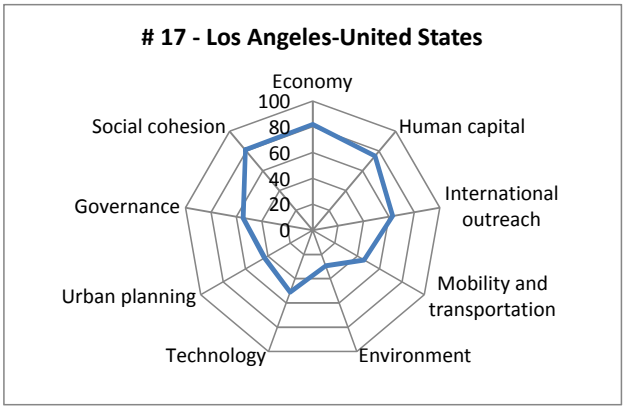

12 - Melbourne-Australia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

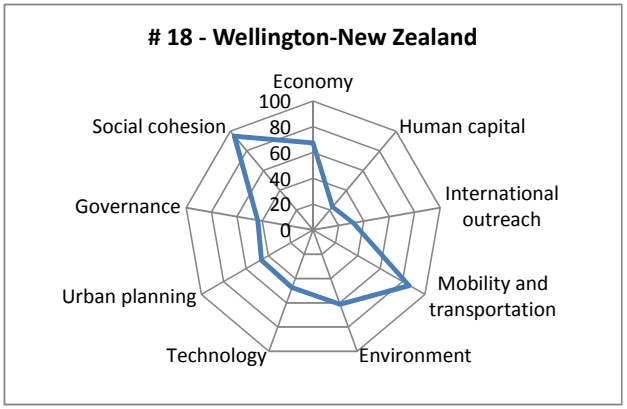

13 - Copenhagen-Denmark
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

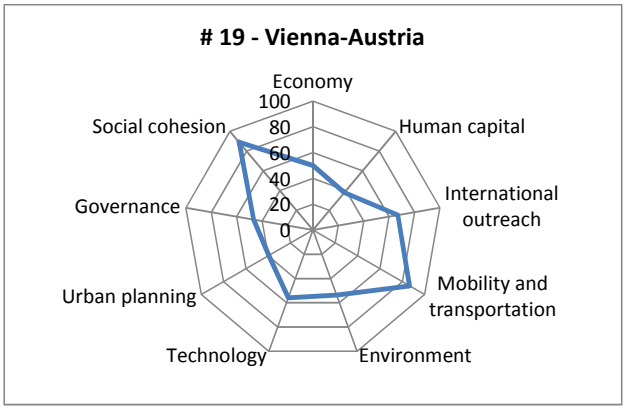

14 - Chicago-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

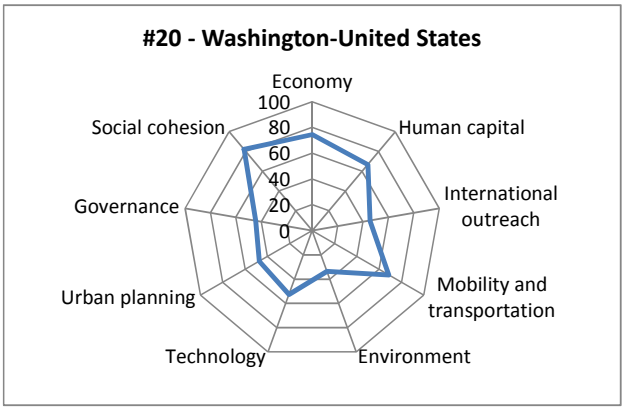

15 - Sydney-Australia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

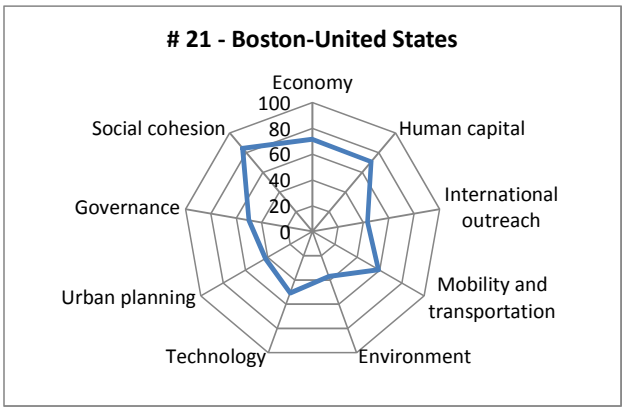

16 - Stockholm-Sweden
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

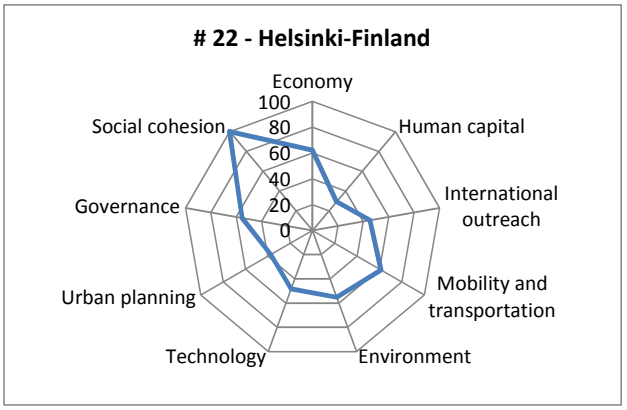

17 - Los Angeles-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

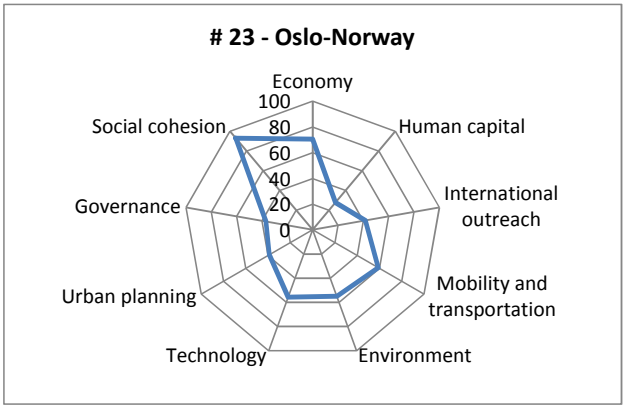

18 - Wellington-New Zealand
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

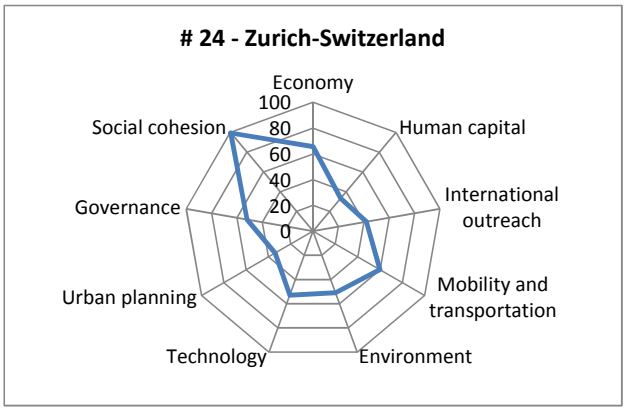

19 - Vienna-Austria
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

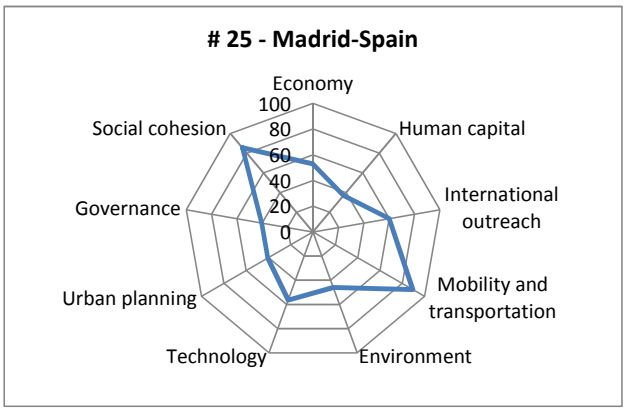

#20 - Washington-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

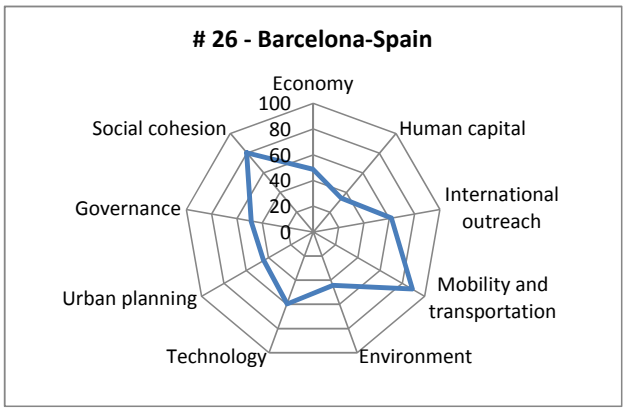

21 - Boston-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

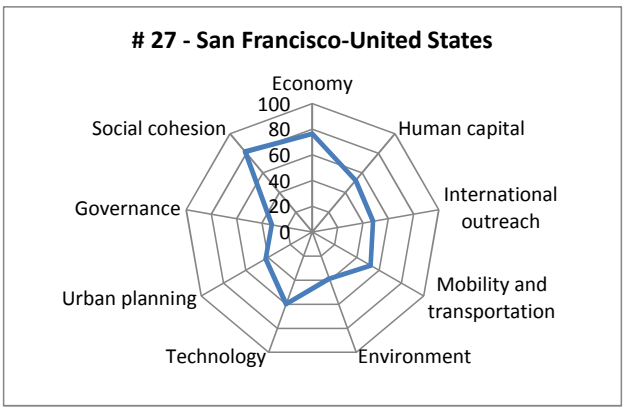

22 - Helsinki-Finland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

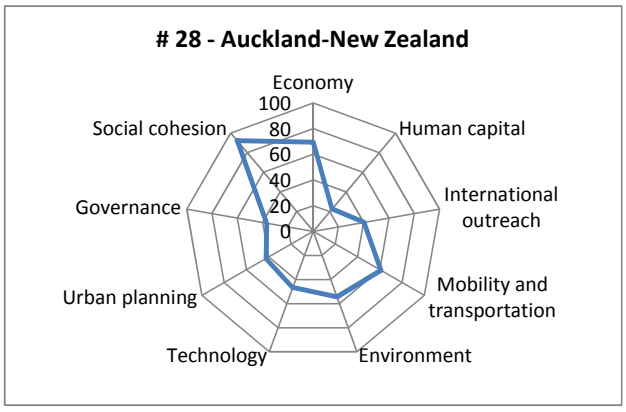

23 - Oslo-Norway
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

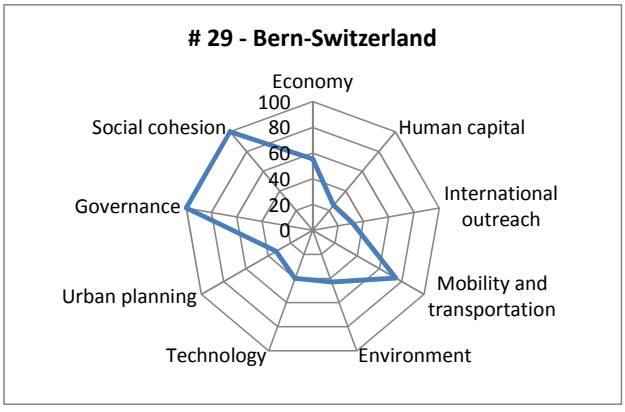

24 - Zurich-Switzerland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

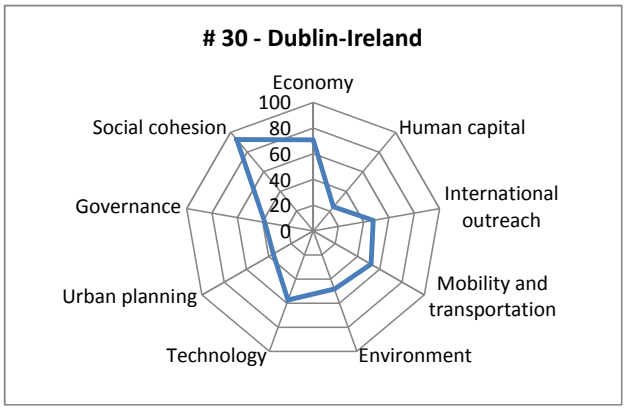

25 - Madrid-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

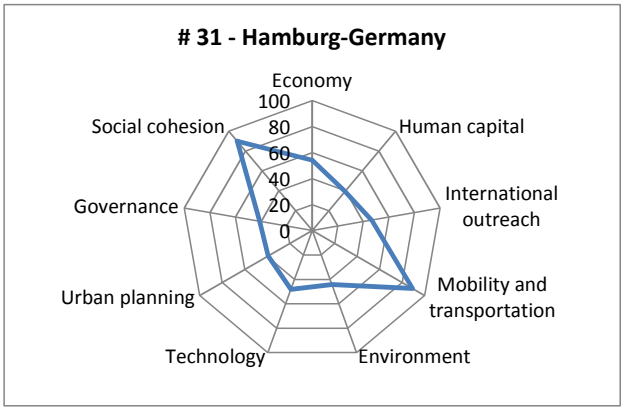

26 - Barcelona-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

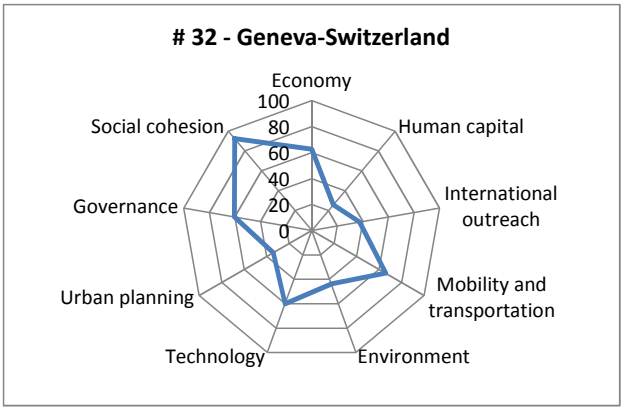

27 - San Francisco-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

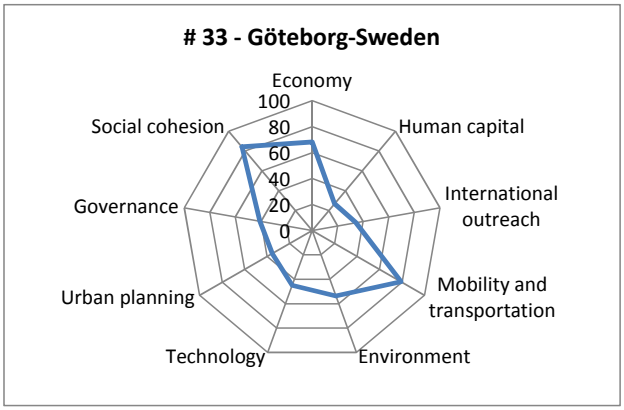

28 - Auckland-New Zealand
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

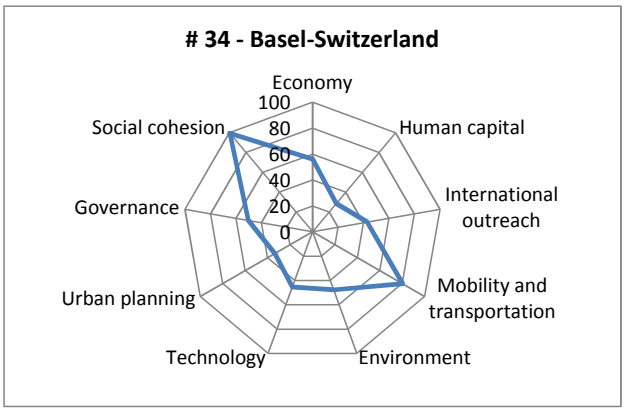

29 - Bern-Switzerland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

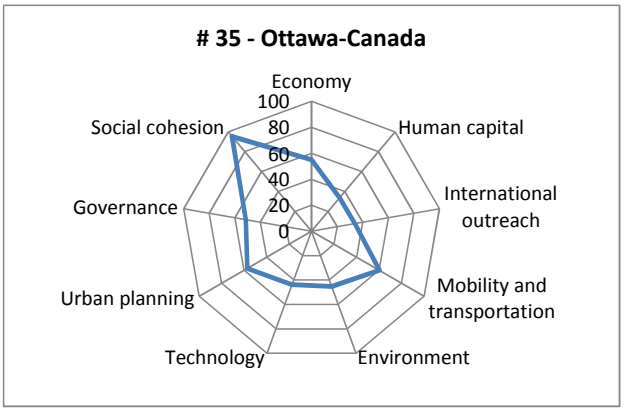

30 - Dublin-Ireland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

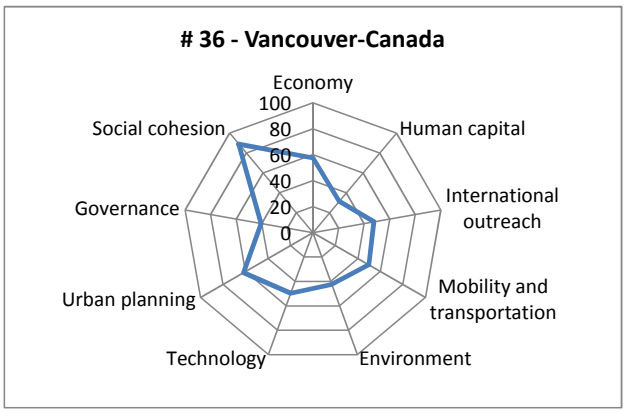

31 - Hamburg-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

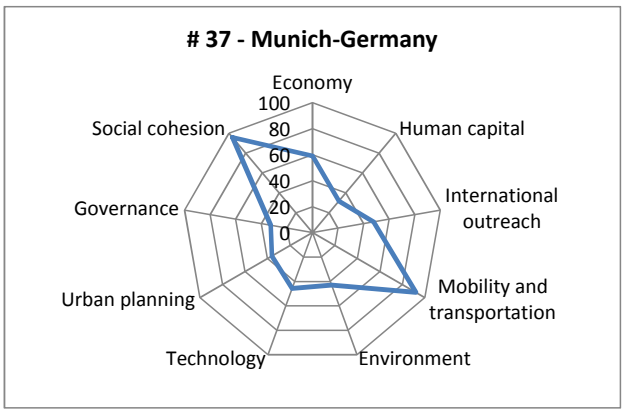

32 - Geneva-Switzerland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

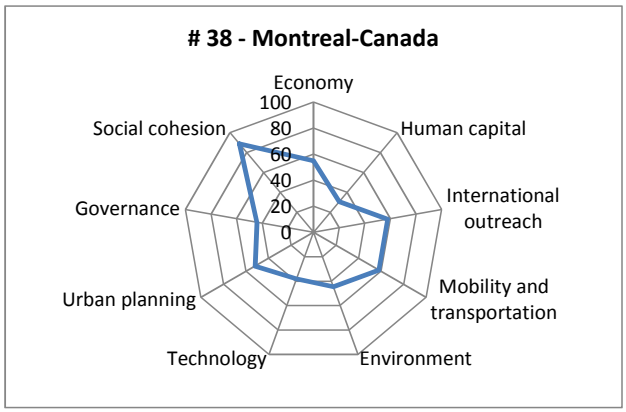

33 - Göteborg-Sweden
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

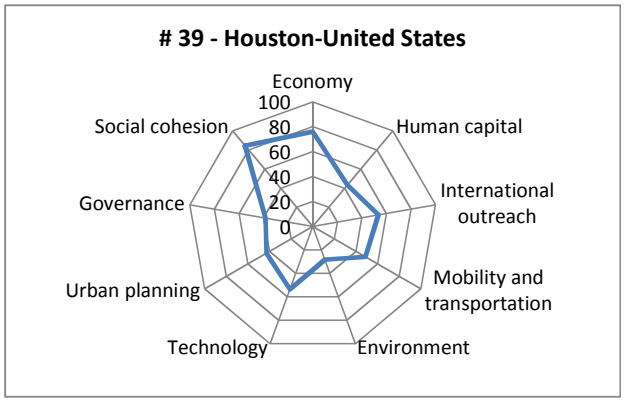

34 - Basel-Switzerland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

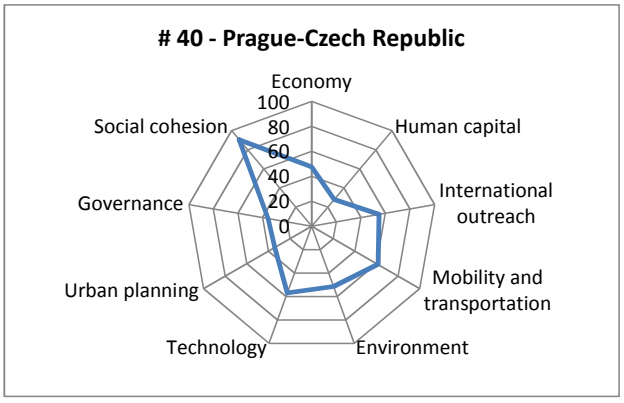

35 - Ottawa-Canada
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

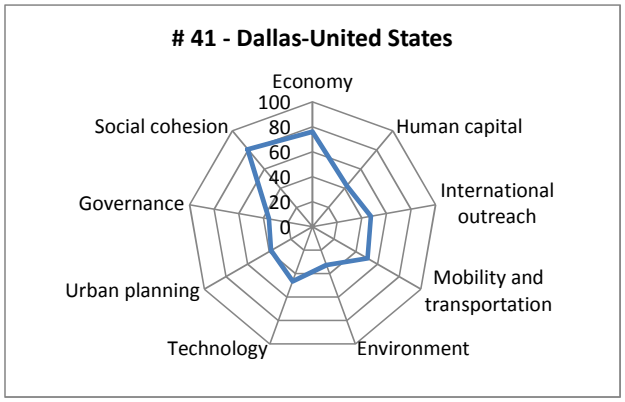

36 - Vancouver-Canada
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

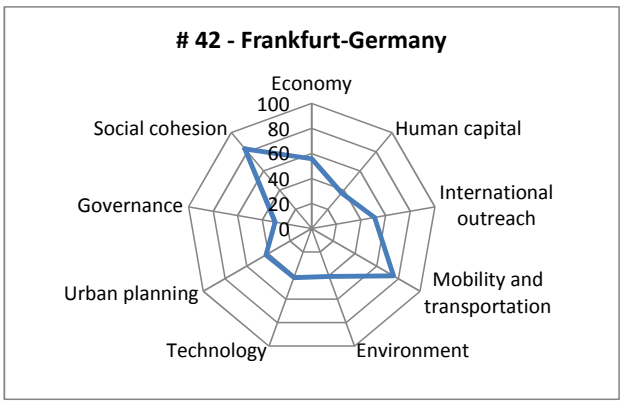

37 - Munich-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

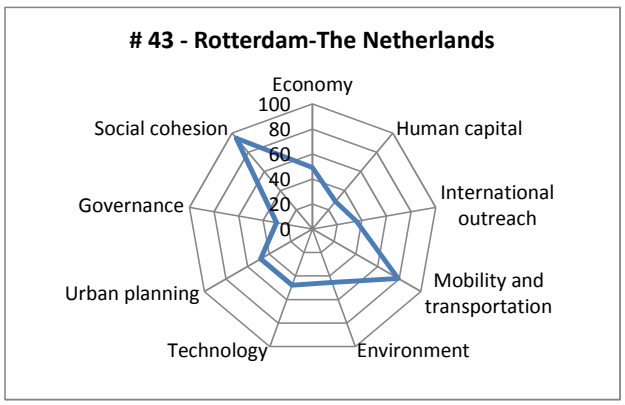

38 - Montreal-Canada
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

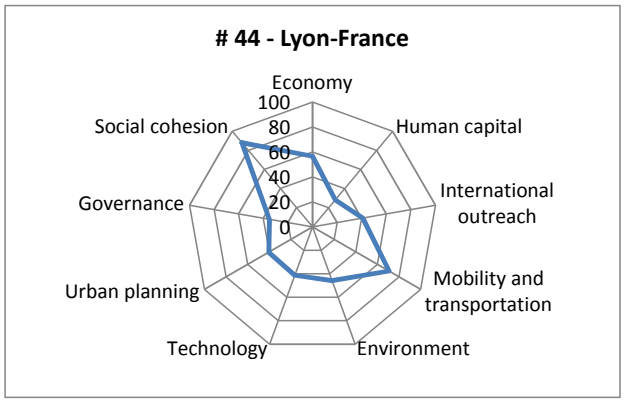

39 - Houston-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

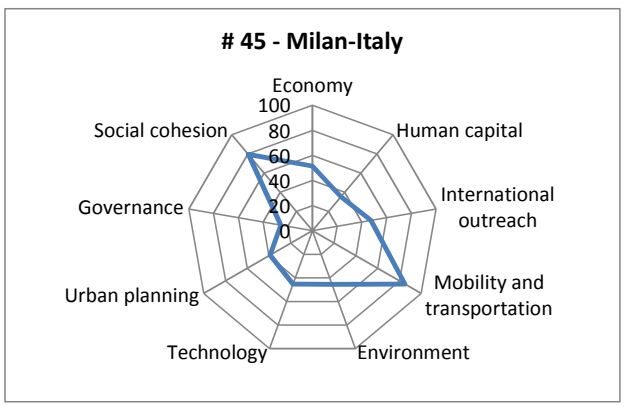

40 - Prague-Czech Republic
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

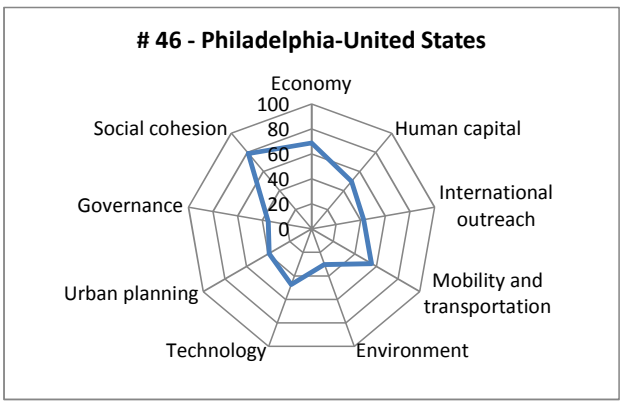

41 - Dallas-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

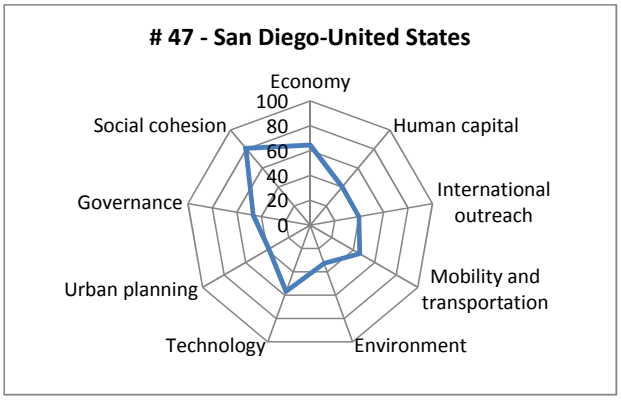

42 - Frankfurt-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

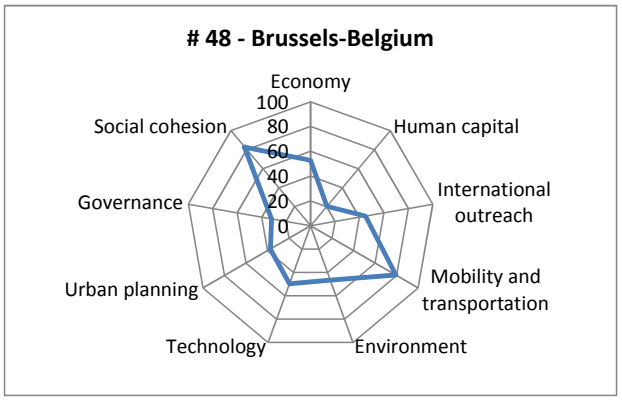

43 - Rotterdam-The Netherlands
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

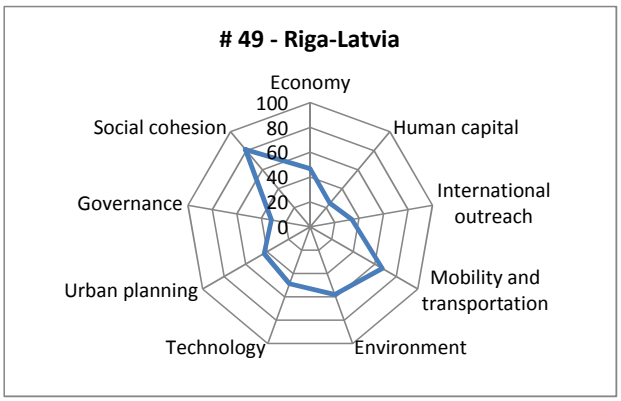

44 - Lyon-France
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

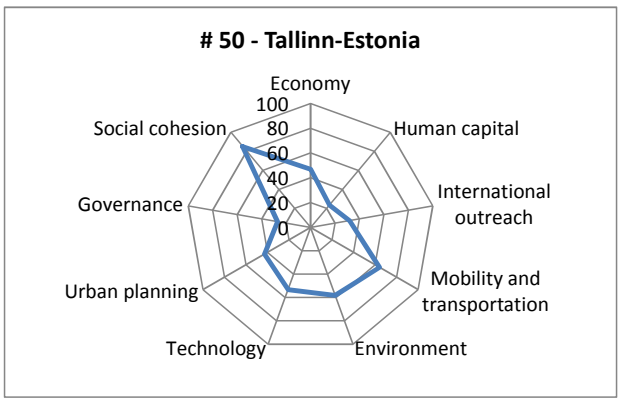

45 - Milan-Italy
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

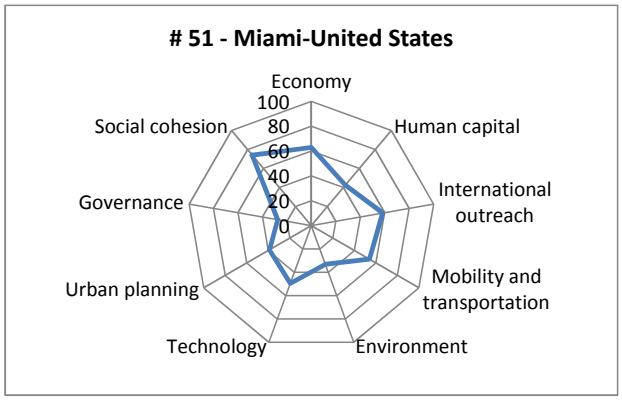

46 - Philadelphia-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

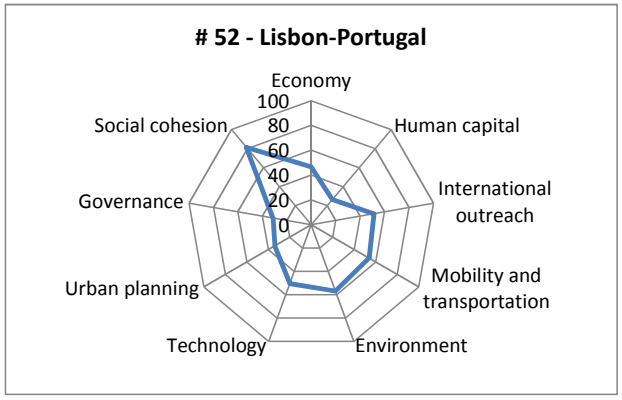

47 - San Diego-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

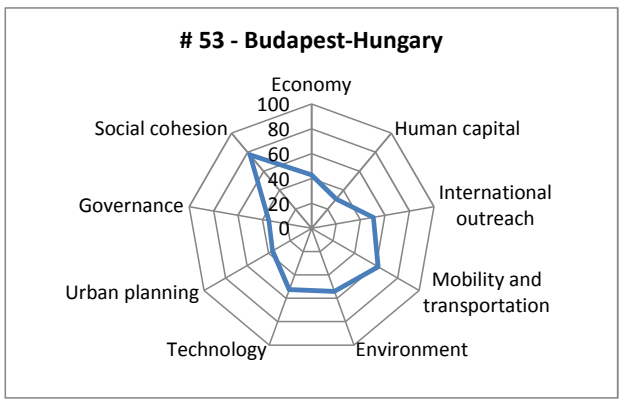

48 - Brussels-Belgium
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

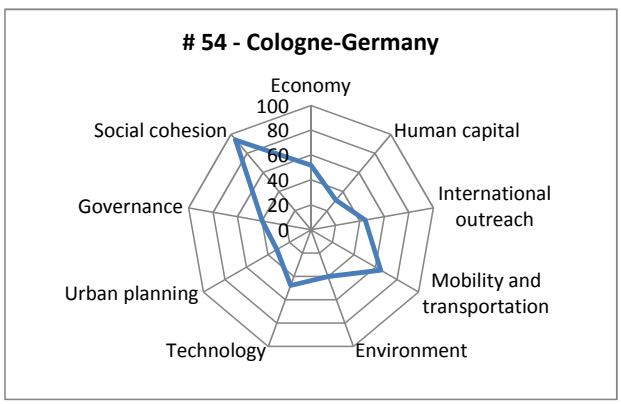

49 - Riga-Latvia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

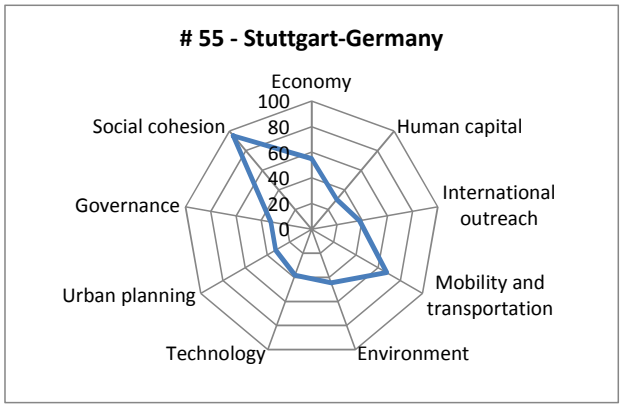

50 - Tallinn-Estonia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

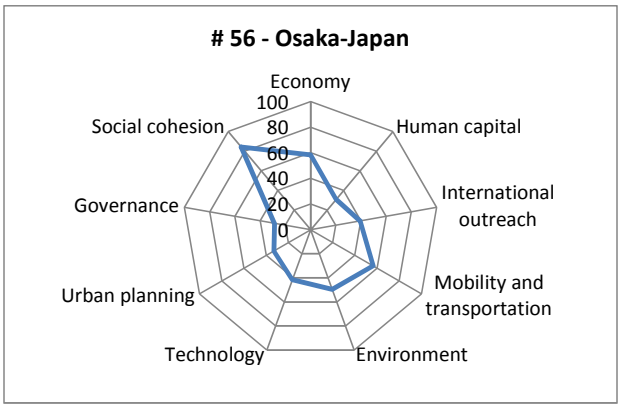

51 - Miami-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

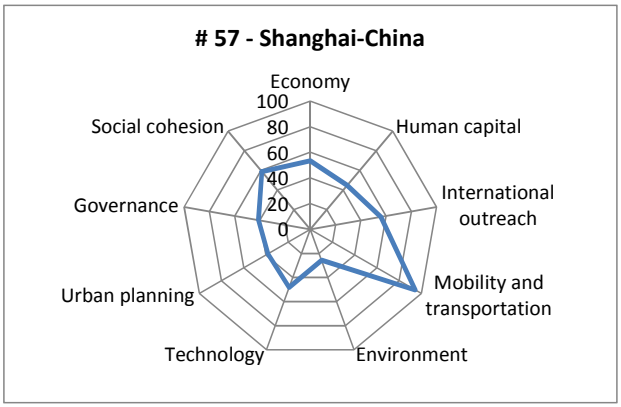

52 - Lisbon-Portugal
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

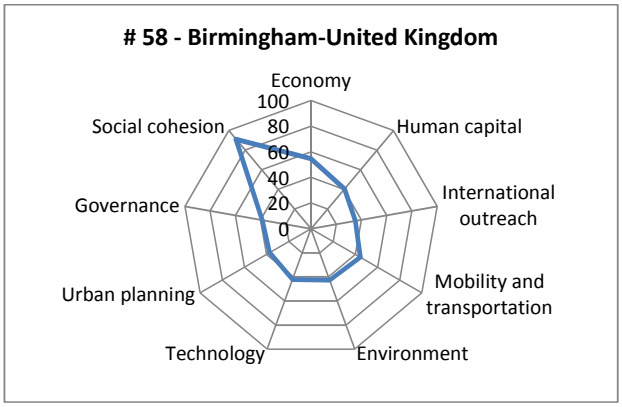

53 - Budapest-Hungary
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

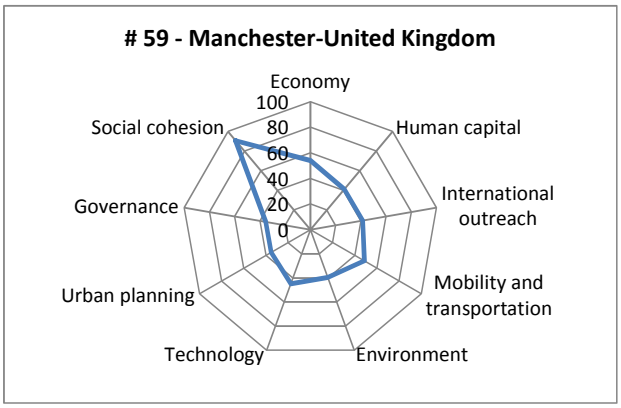

54 - Cologne-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

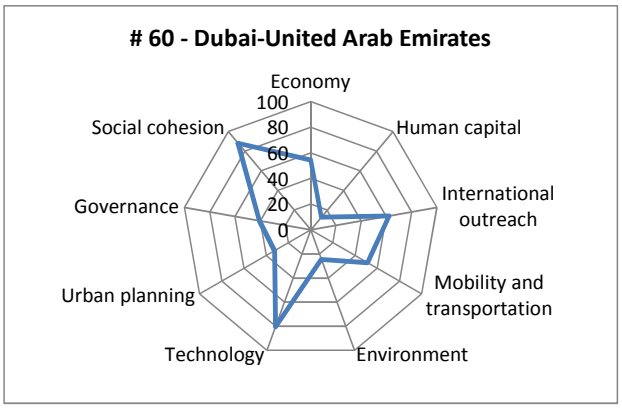

55 - Stuttgart-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

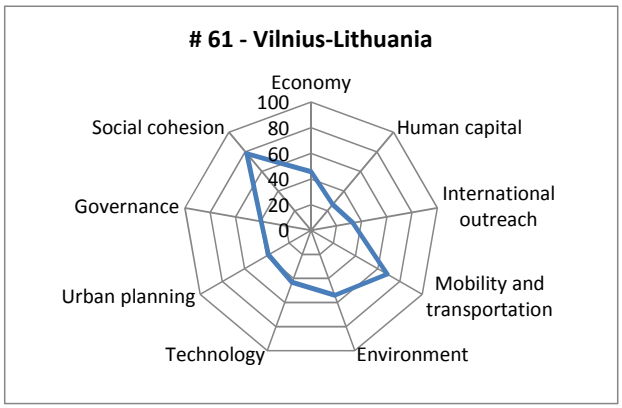

56 - Osaka-Japan
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

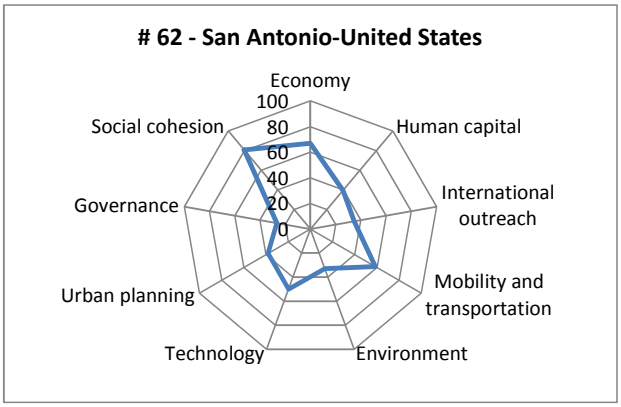

57 - Shanghai-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

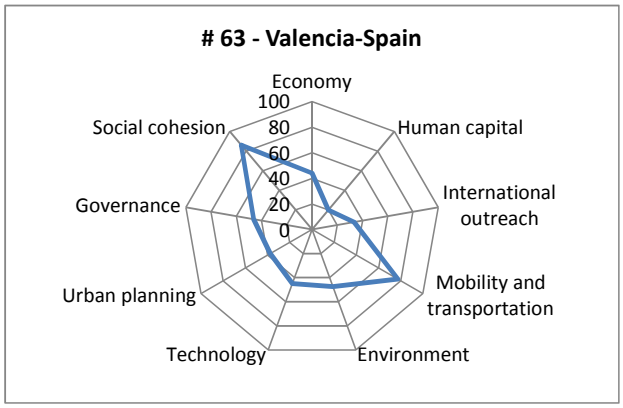

58 - Birmingham-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

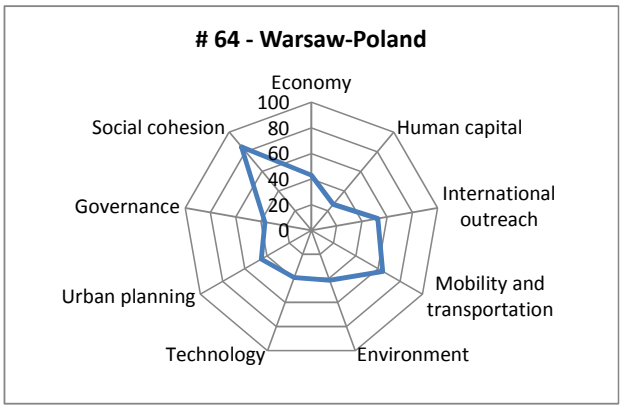

59 - Manchester-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

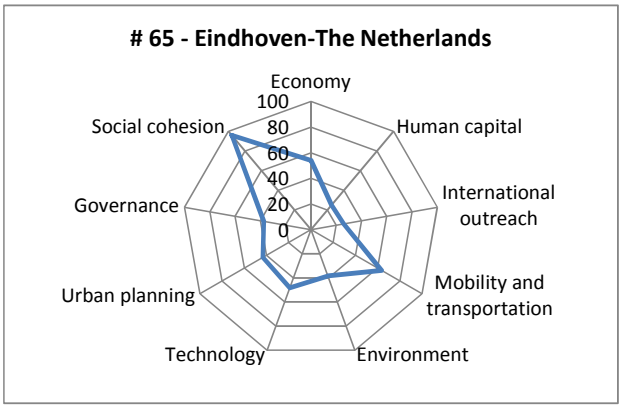

60 - Dubai-United Arab Emirates
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

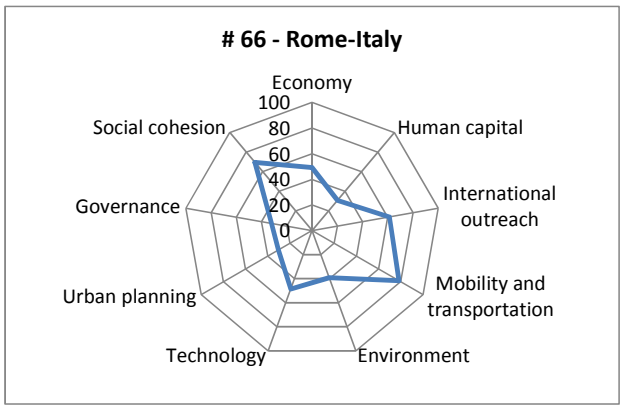

61 - Vilnius-Lithuania
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

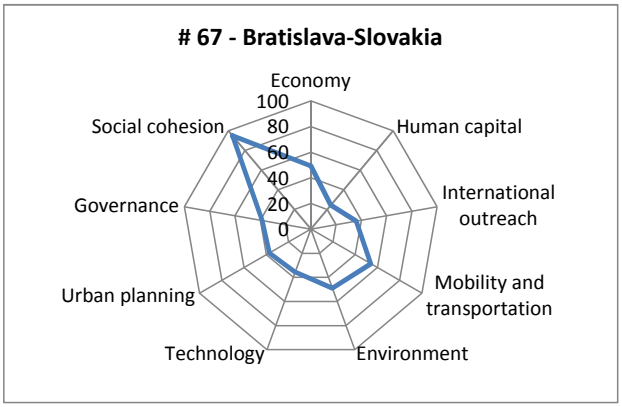

62 - San Antonio-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

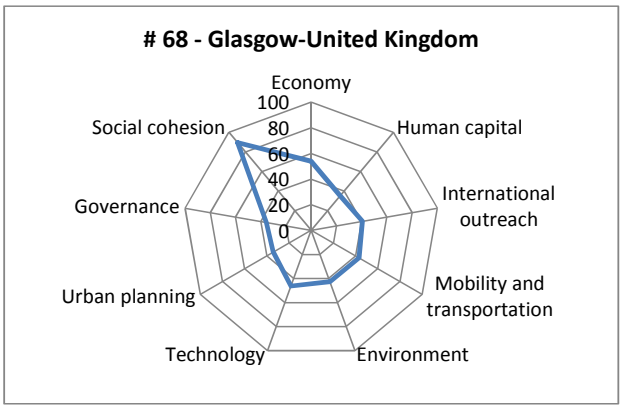

63 - Valencia-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

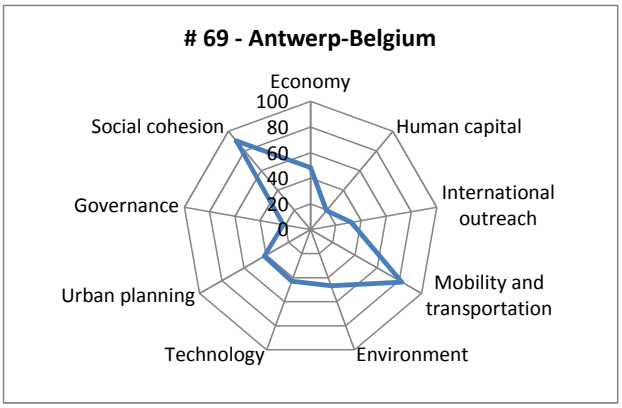

64 - Warsaw-Poland
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


65 - Eindhoven-The Netherlands
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

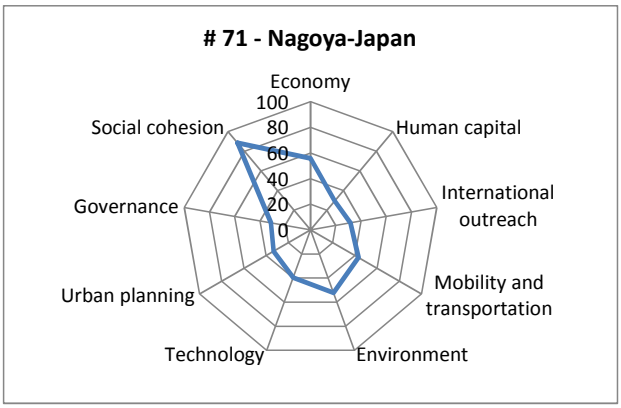

66 - Rome-Italy
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

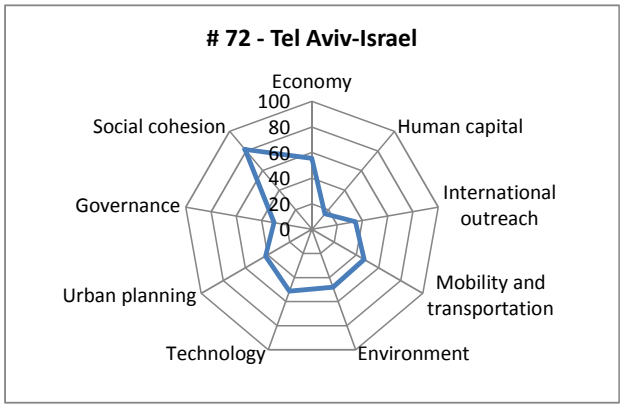

67 - Bratislava-Slovakia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

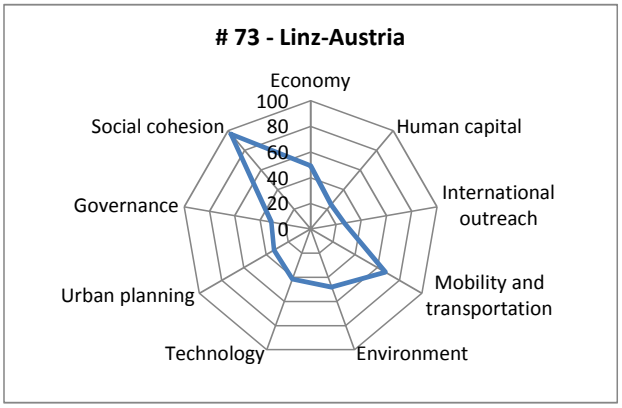

68 - Glasgow-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

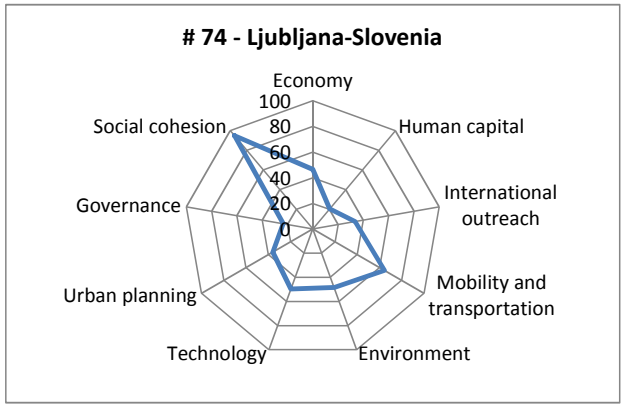

69 - Antwerp-Belgium
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

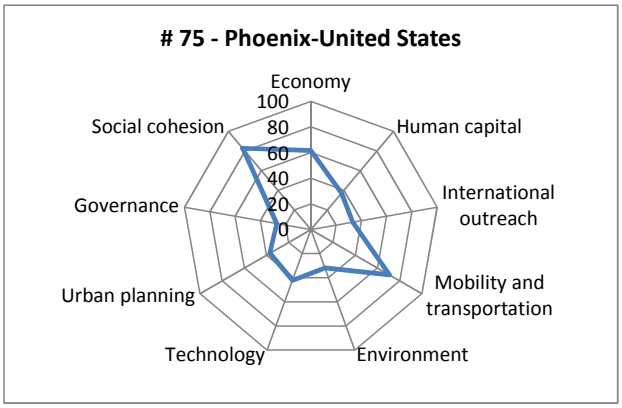
70 - Moscow-Russia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

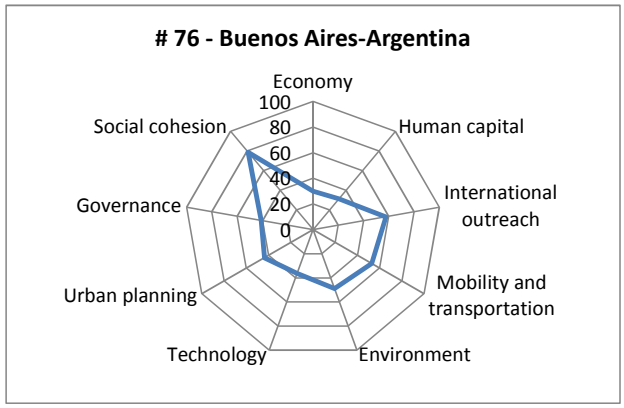

71 - Nagoya-Japan
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

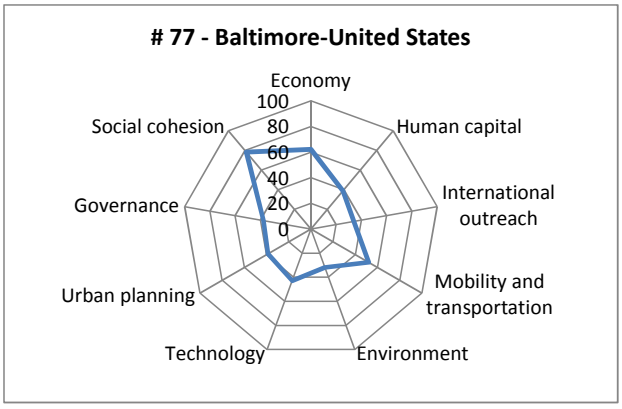

72 - Tel Aviv-Israel
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

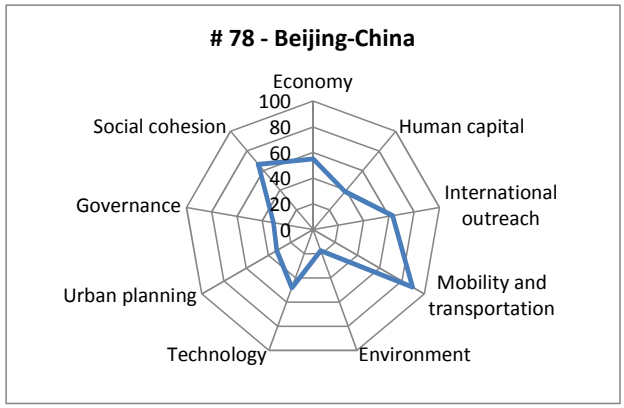

73 - Linz-Austria
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

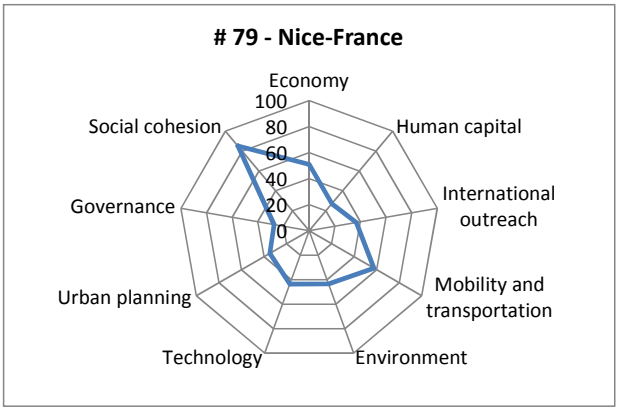

74 - Ljubljana-Slovenia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

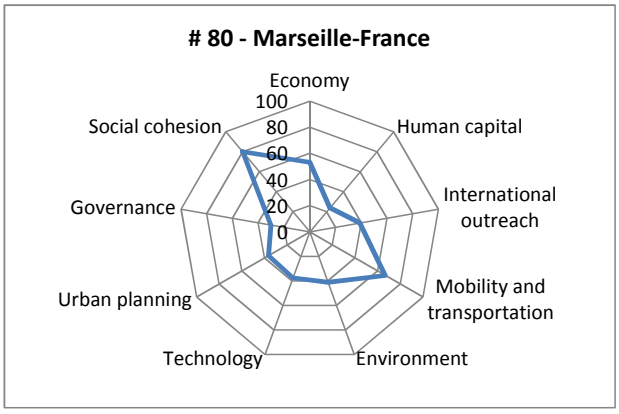

75 - Phoenix-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

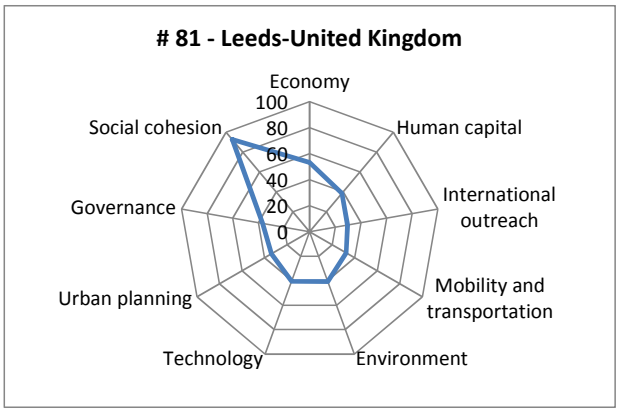

76 - Buenos Aires-Argentina
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

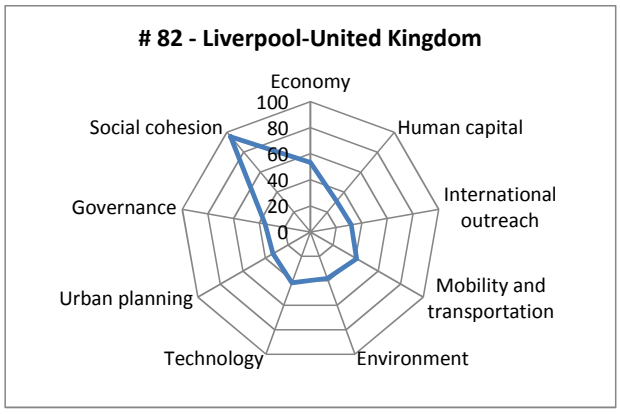

77 - Baltimore-United States
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

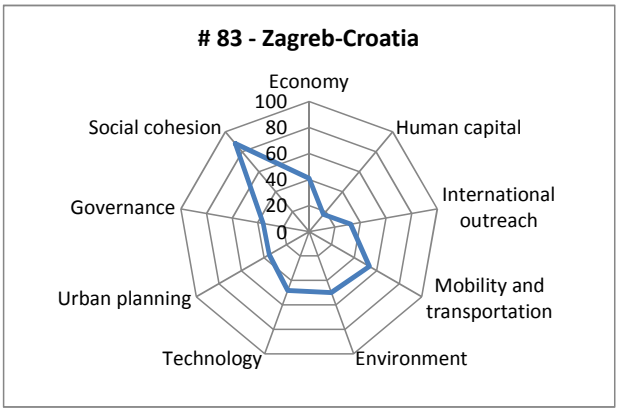

78 - Beijing-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

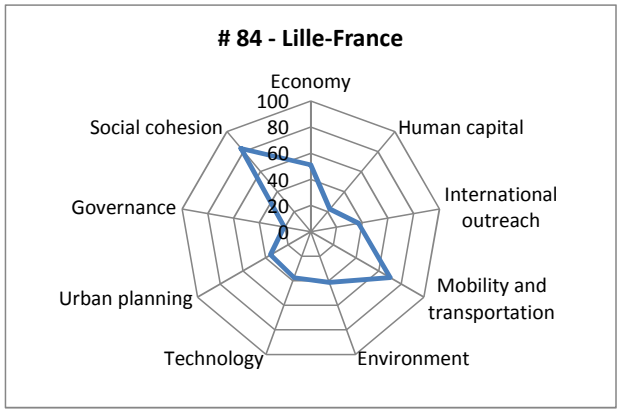

79 - Nice-France
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

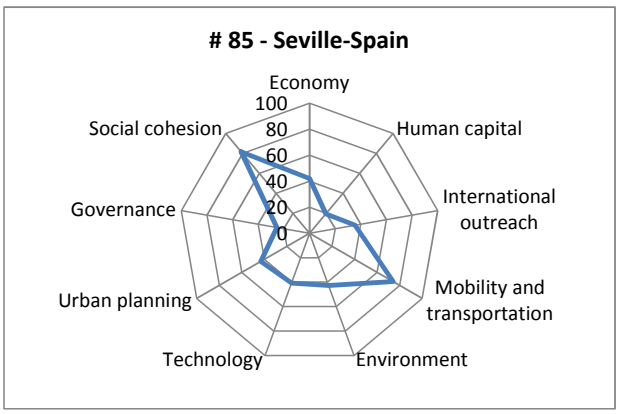

80 - Marseille-France
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

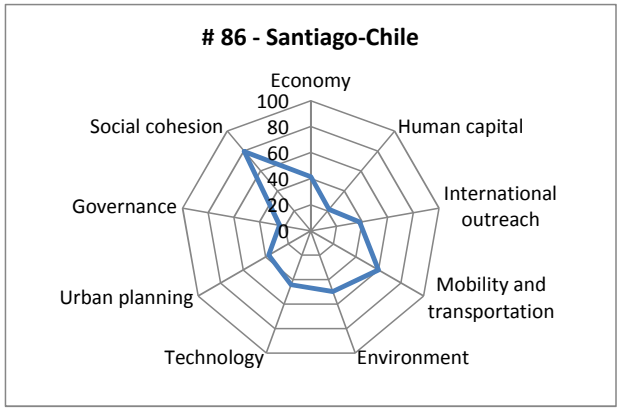

81 - Leeds-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

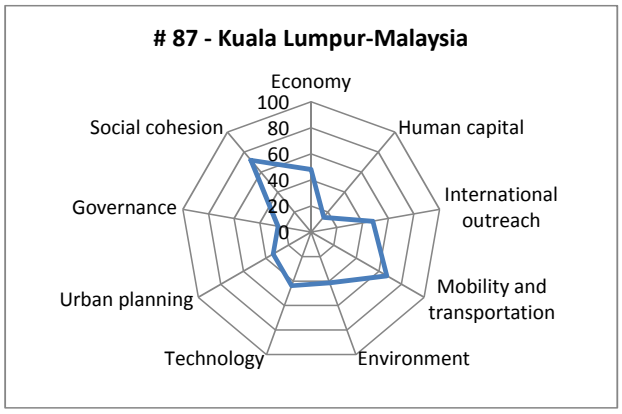

82 - Liverpool-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

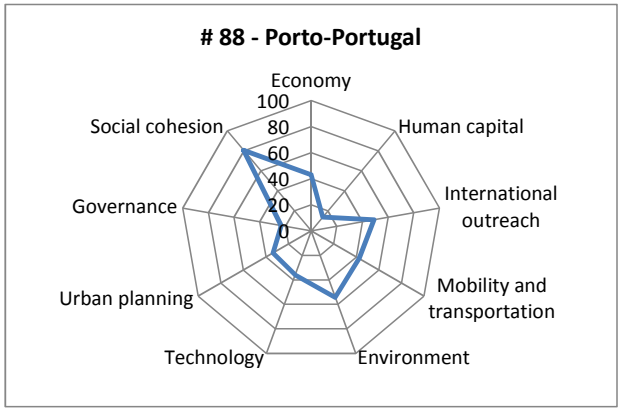

83 - Zagreb-Croatia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

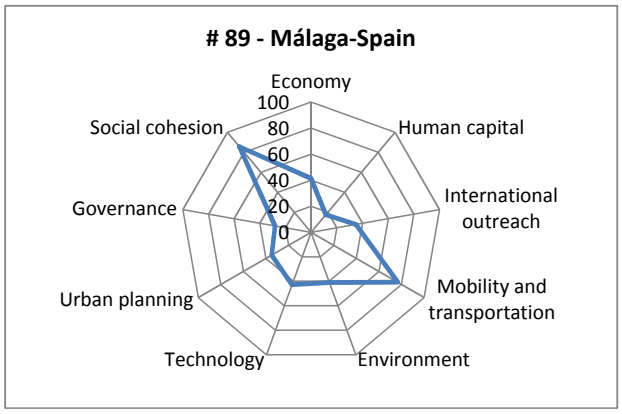

84 - Lille-France
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

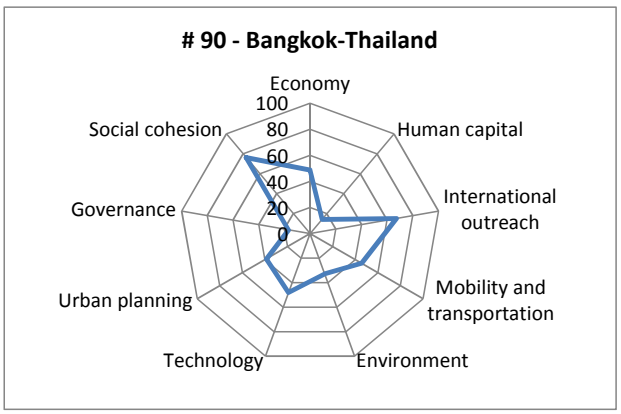

85 - Seville-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

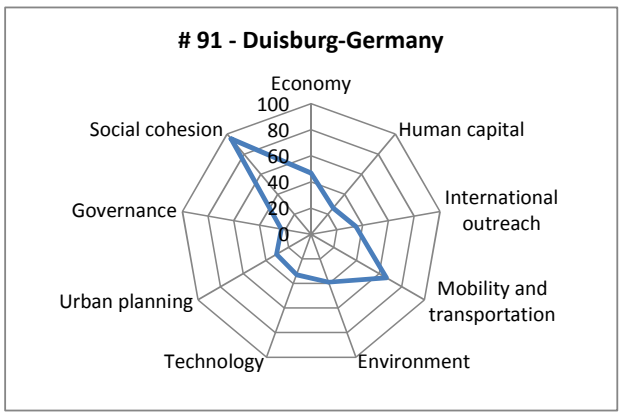

86 - Santiago-Chile
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

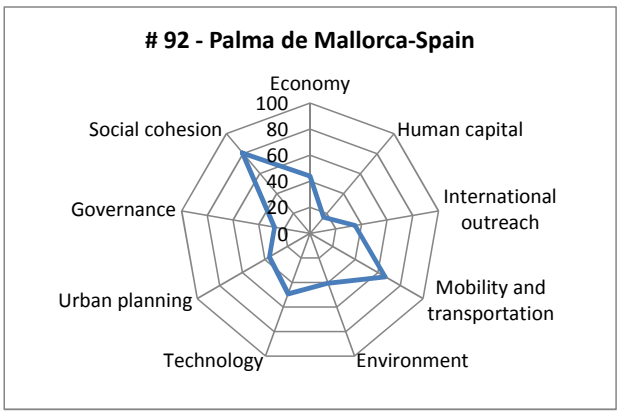

87 - Kuala Lumpur-Malaysia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

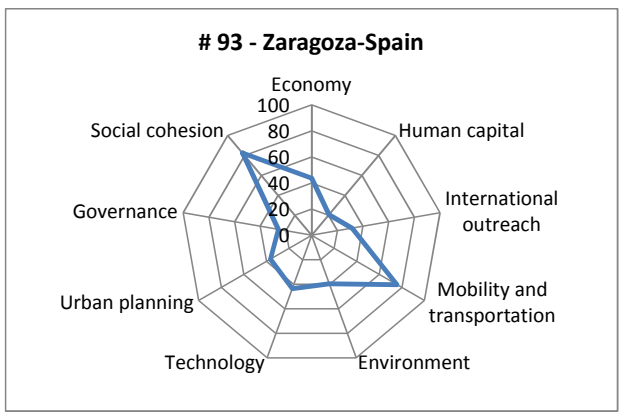

88 - Porto-Portugal
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

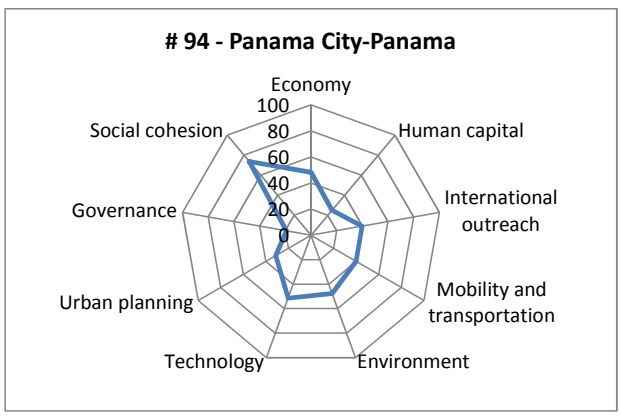

89 - Málaga-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

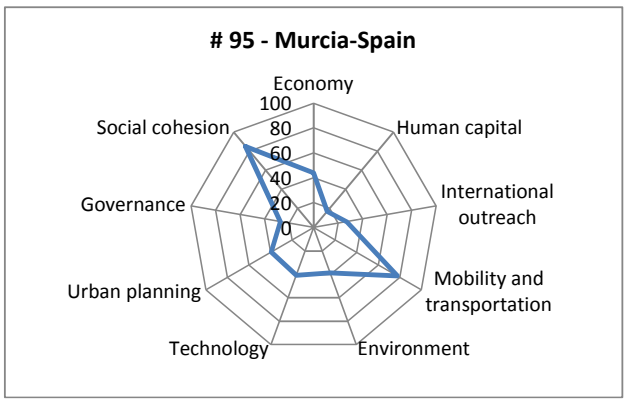

90 - Bangkok-Thailand
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

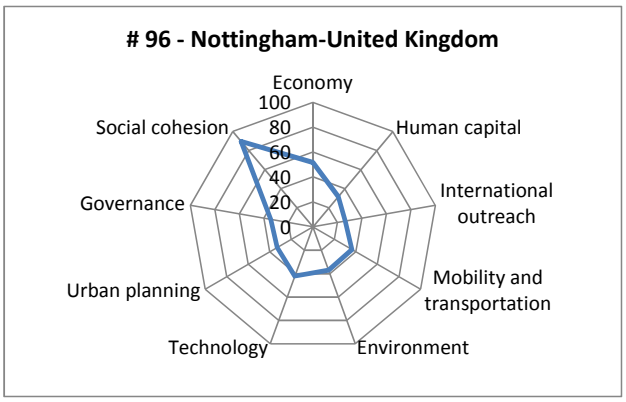

91 - Duisburg-Germany
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

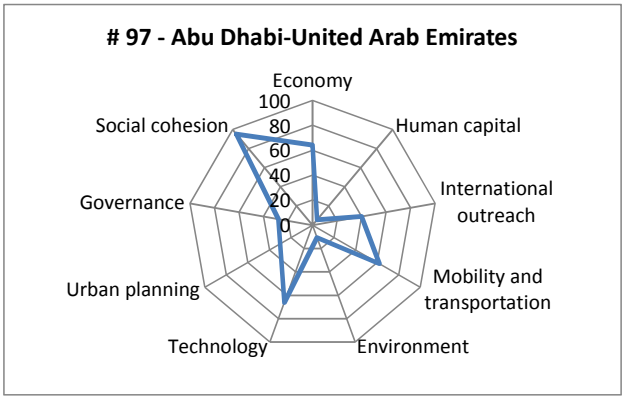

92 - Palma de Mallorca-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

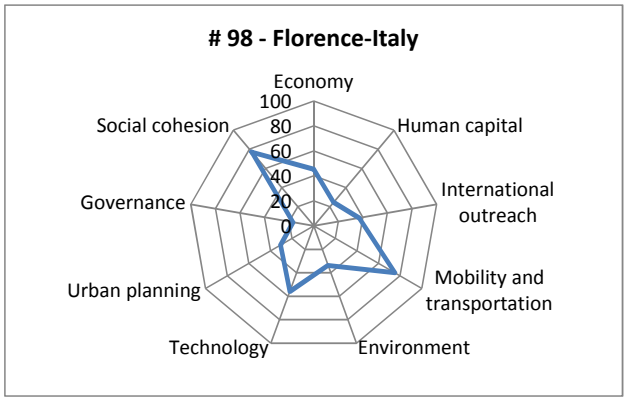

93 - Zaragoza-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

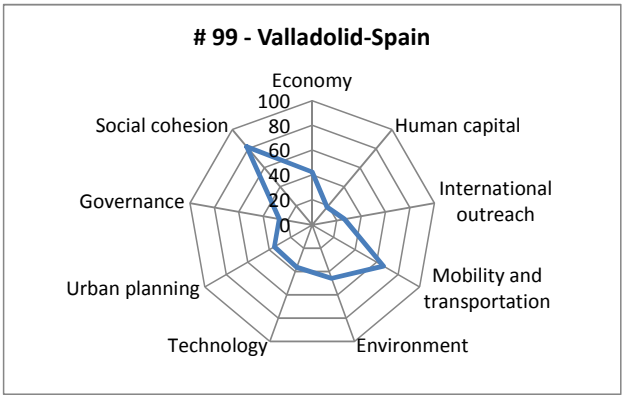

94 - Panama City-Panama
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

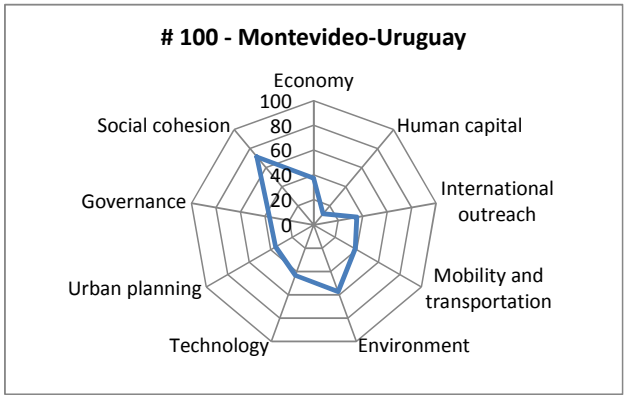

95 - Murcia-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

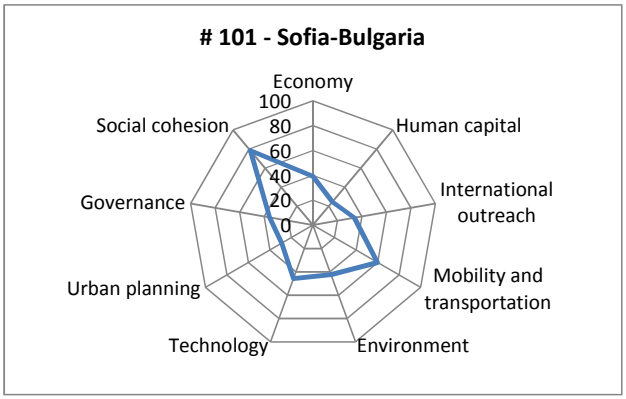

96 - Nottingham-United Kingdom
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

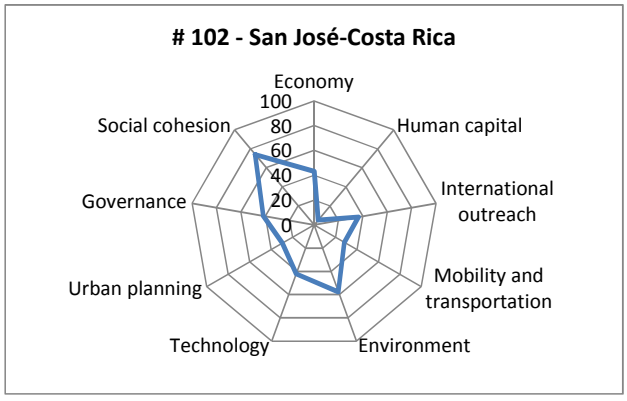

97 - Abu Dhabi-United Arab Emirates
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

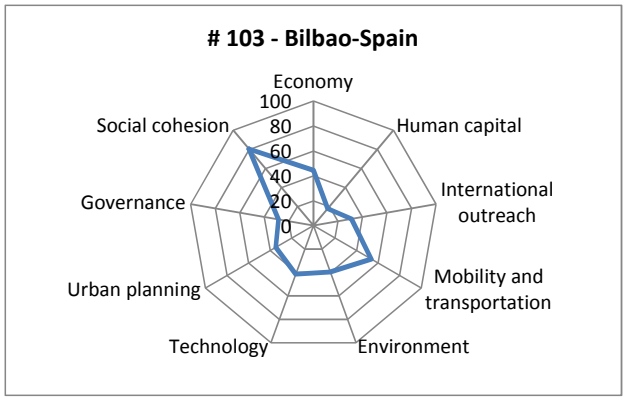

98 - Florence-Italy
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

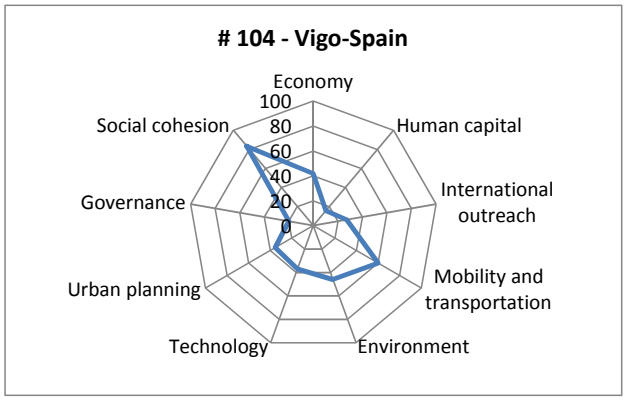

99 - Valladolid-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

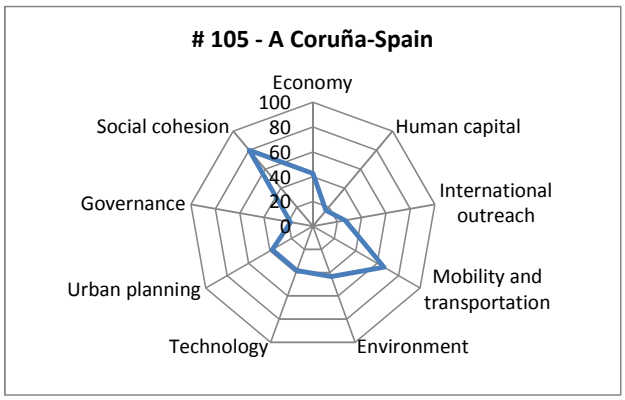

100 - Montevideo-Uruguay
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

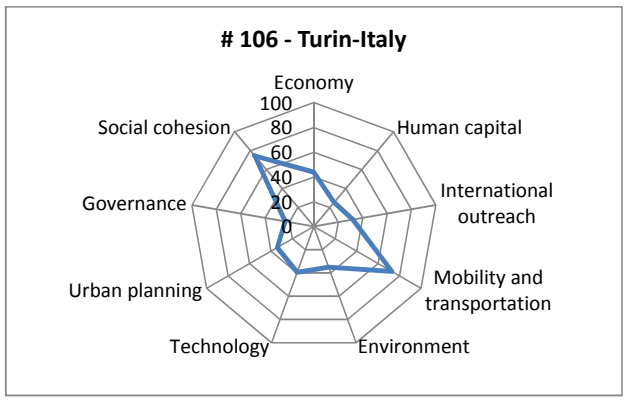

101 - Sofia-Bulgaria
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

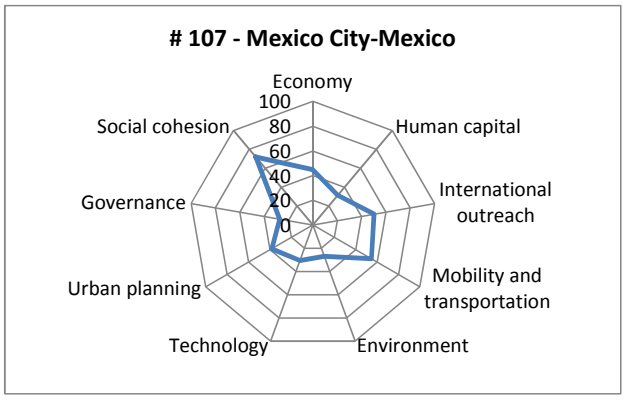

102 - San José-Costa Rica
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

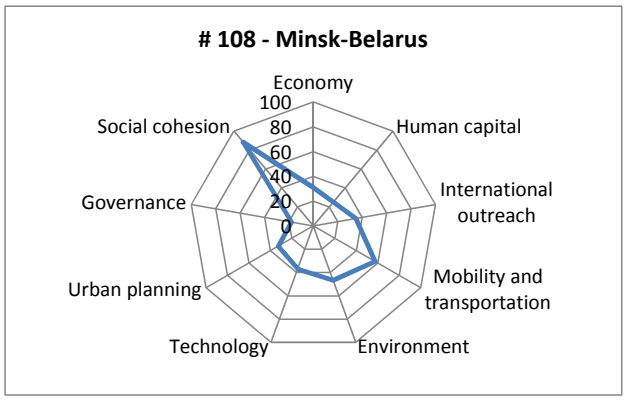

103 - Bilbao-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

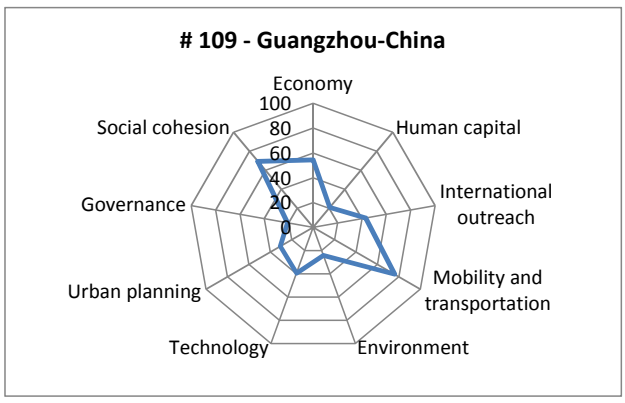

104 - Vigo-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

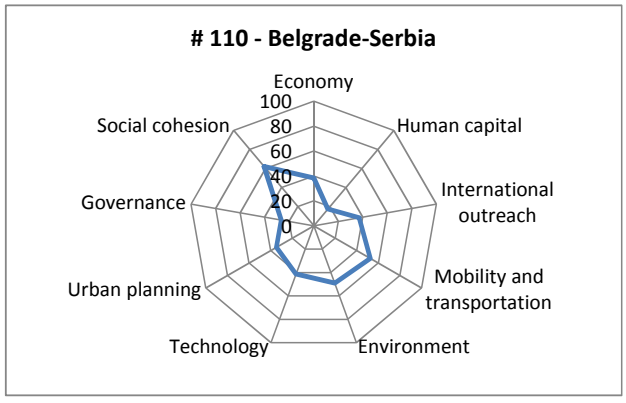

105 - A Coruña-Spain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

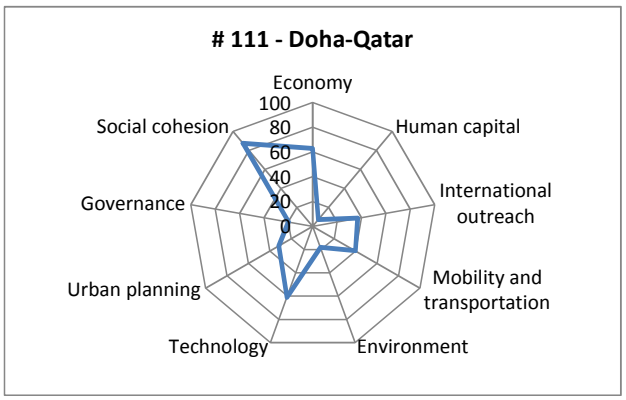

106 - Turin-Italy
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

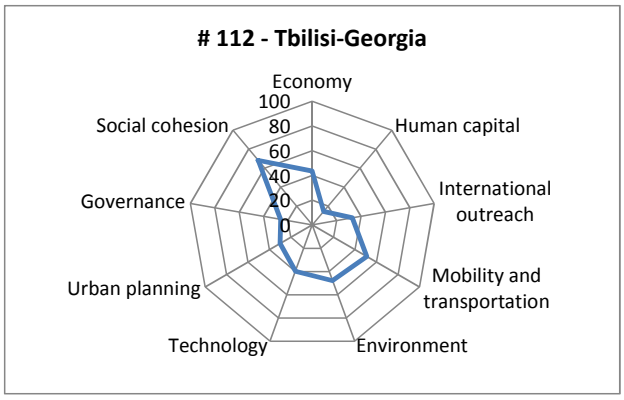

107 - Mexico City-Mexico
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


108 - Minsk-Belarus
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

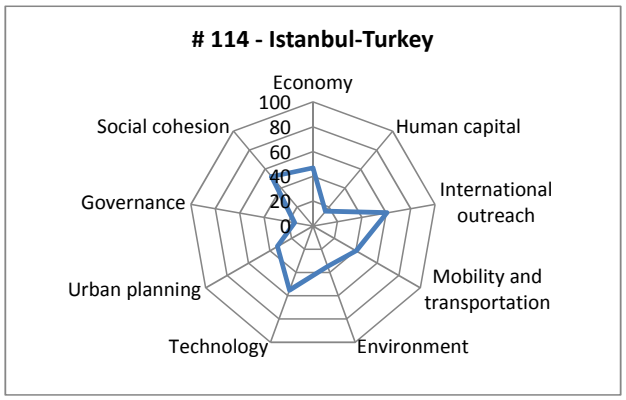

109 - Guangzhou-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

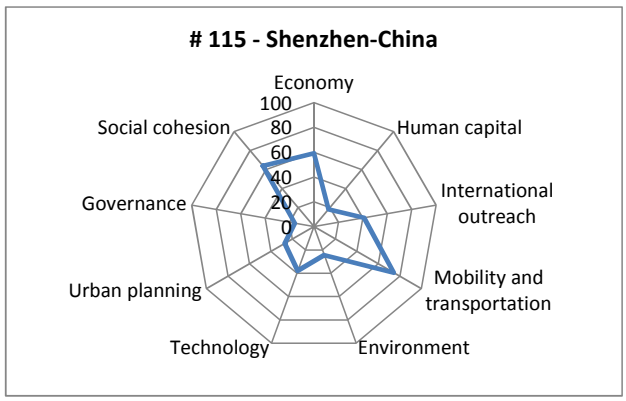

110 - Belgrade-Serbia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

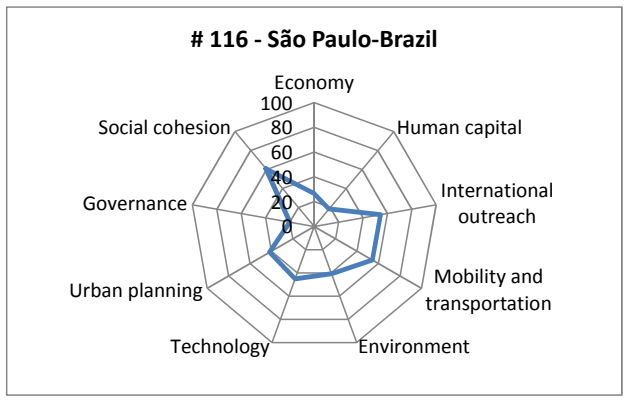

111 - Doha-Qatar
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

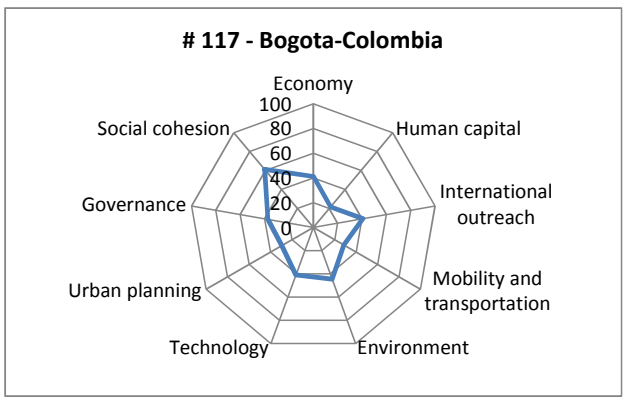

112 - Tbilisi-Georgia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

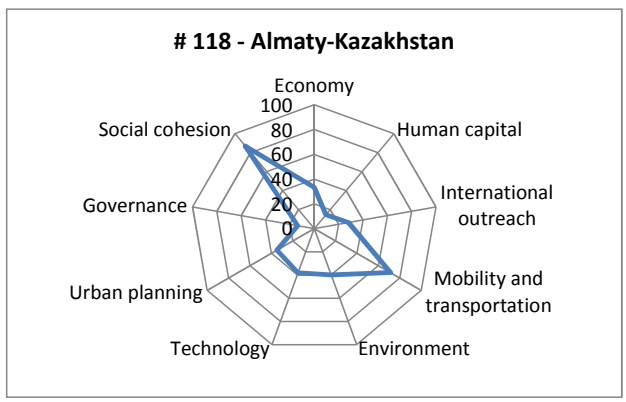
113 - Kiev-Ukraine
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

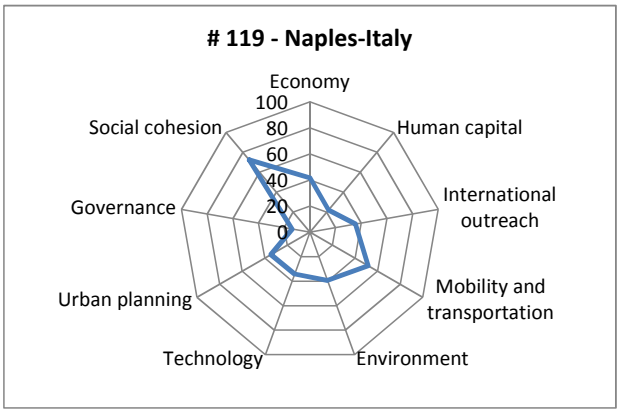

114 - Istanbul-Turkey
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

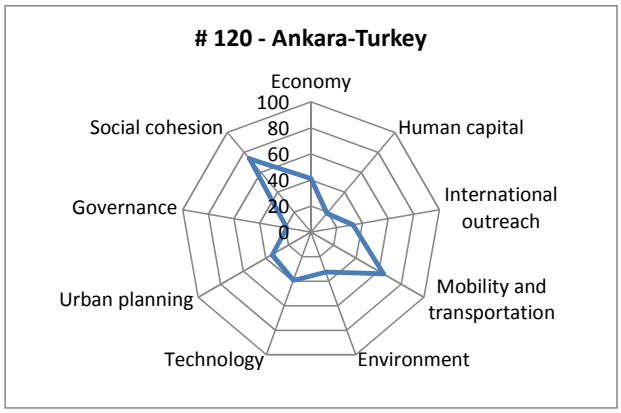

115 - Shenzhen-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

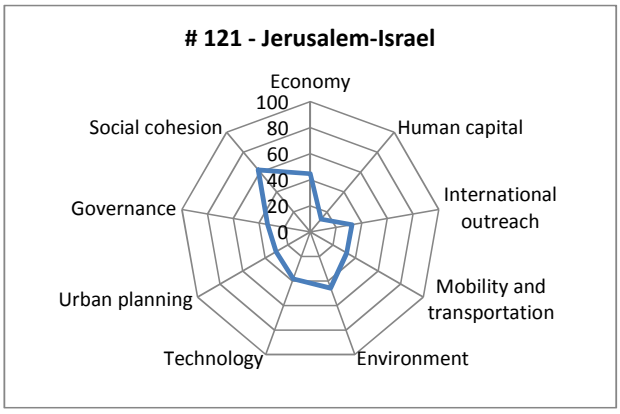

116 - São Paulo-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

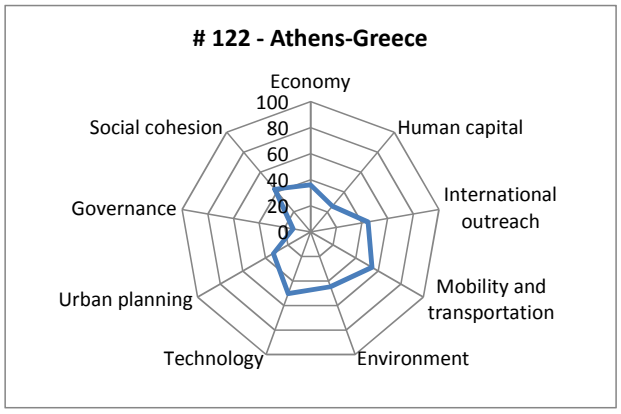

117 - Bogota-Colombia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

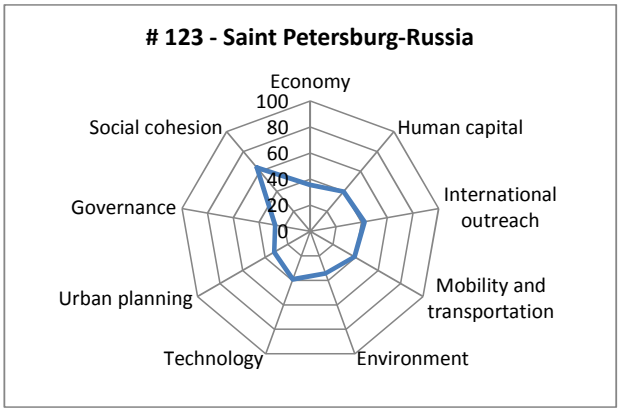

118 - Almaty-Kazakhstan
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

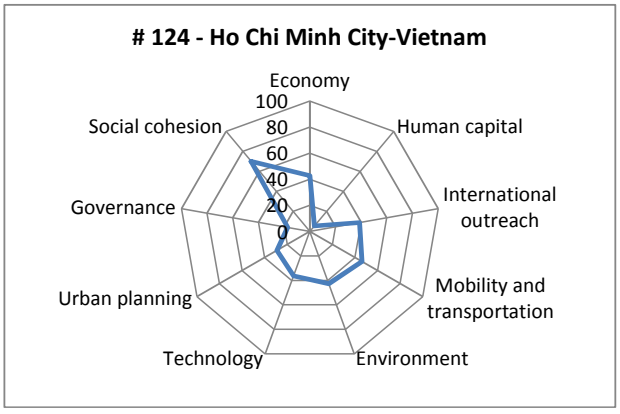

119 - Naples-Italy
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

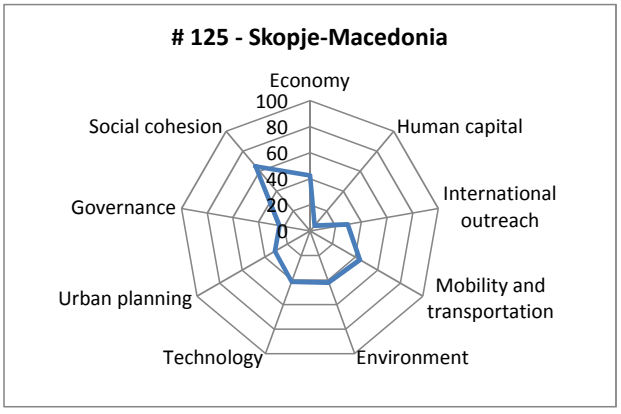

120 - Ankara-Turkey
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

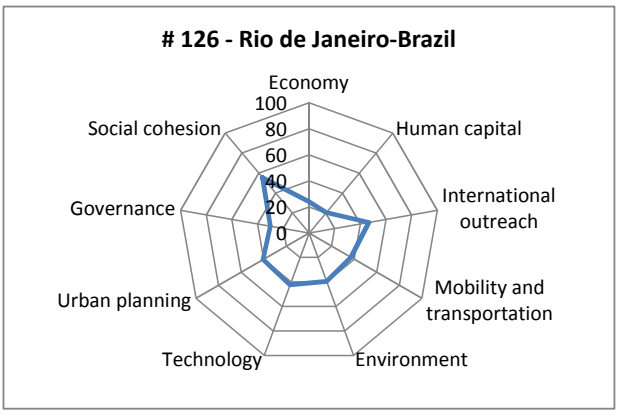

121 - Jerusalem-Israel
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

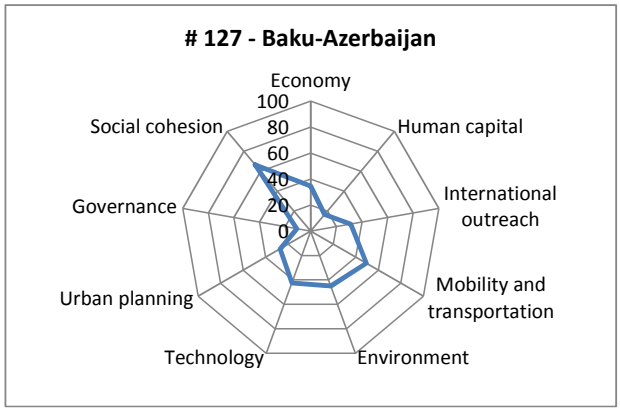

122 - Athens-Greece
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

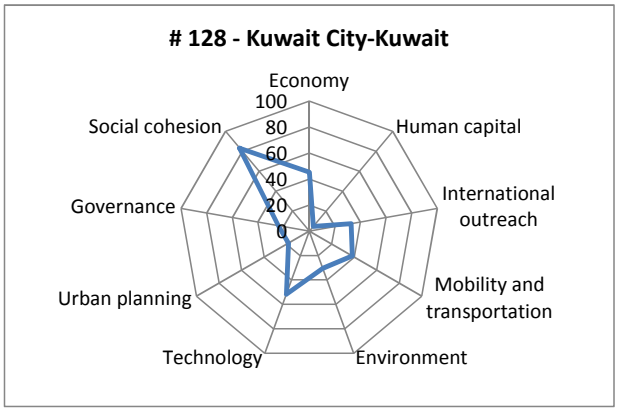

123 - Saint Petersburg-Russia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

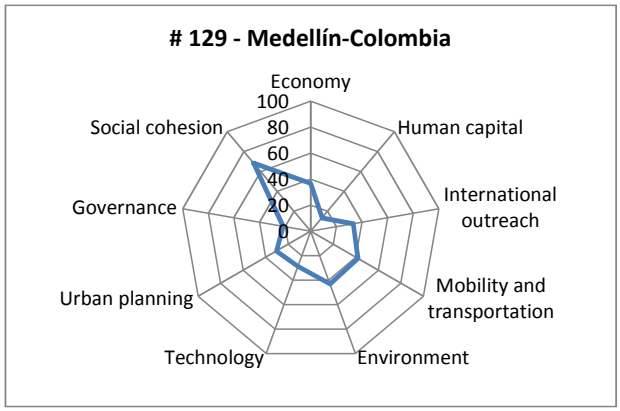

124 - Ho Chi Minh City-Vietnam
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

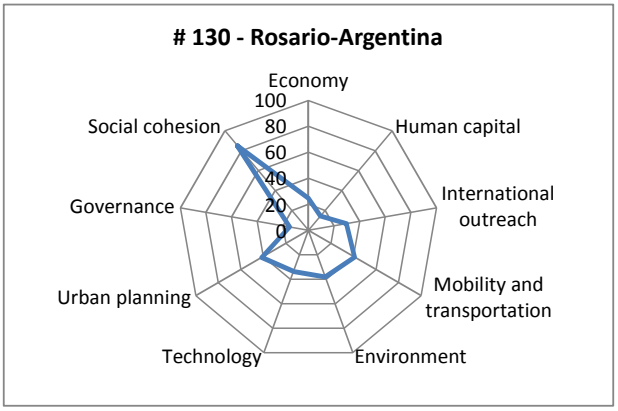

125 - Skopje-Macedonia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

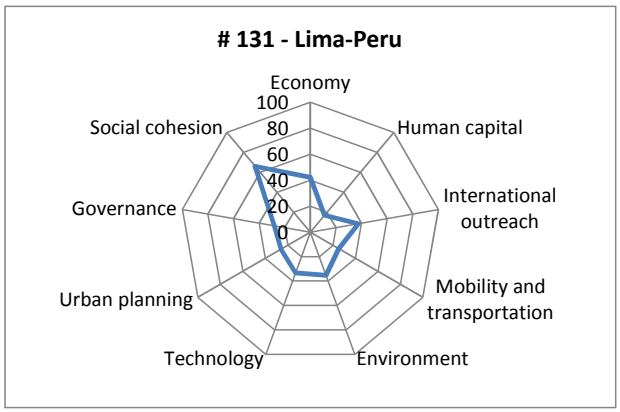

126 - Rio de Janeiro-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

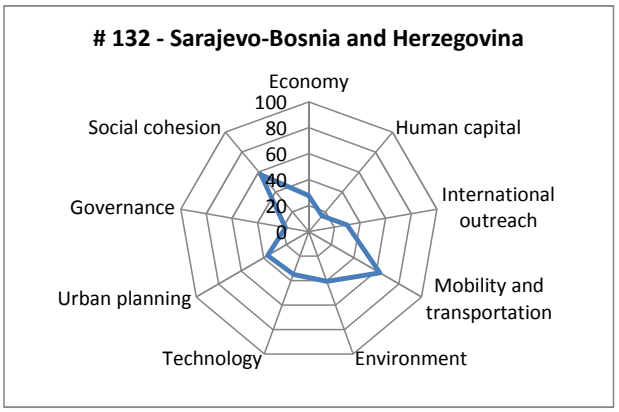

127 - Baku-Azerbaijan
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

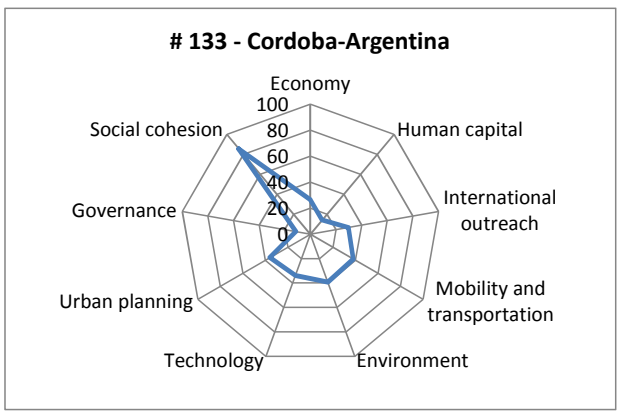

128 - Kuwait City-Kuwait
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

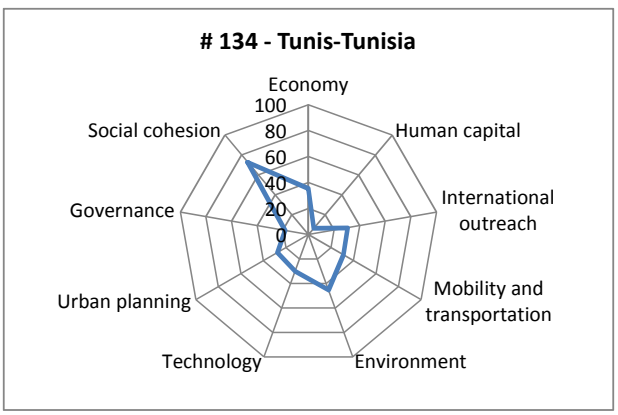

129 - Medellín-Colombia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

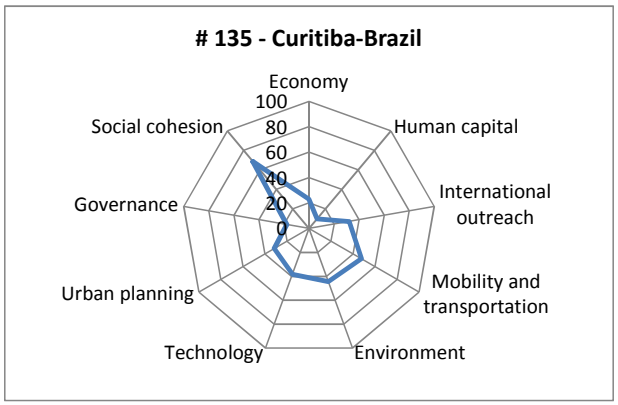

130 - Rosario-Argentina
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


131 - Lima-Peru
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

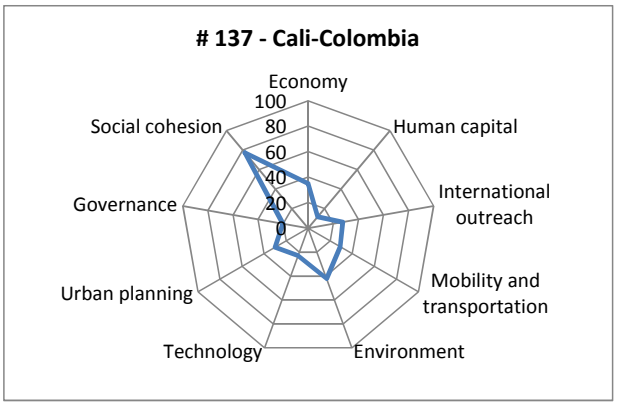

132 - Sarajevo-Bosnia and Herzegovina
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

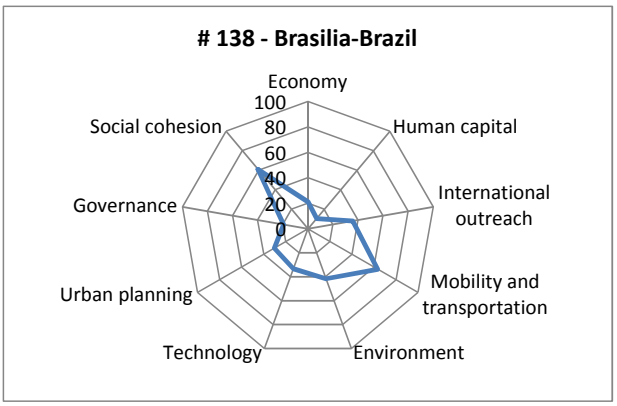

133 - Cordoba-Argentina
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

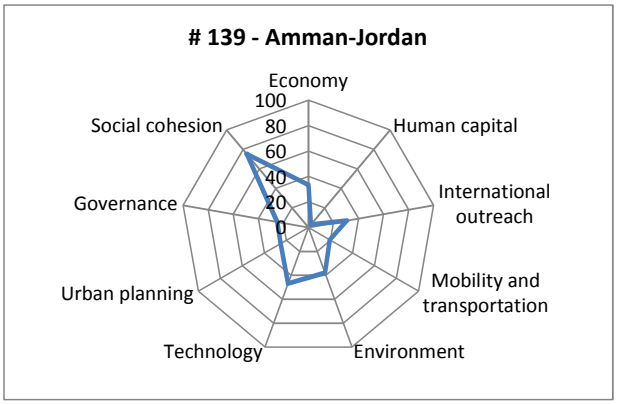

134 - Tunis-Tunisia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

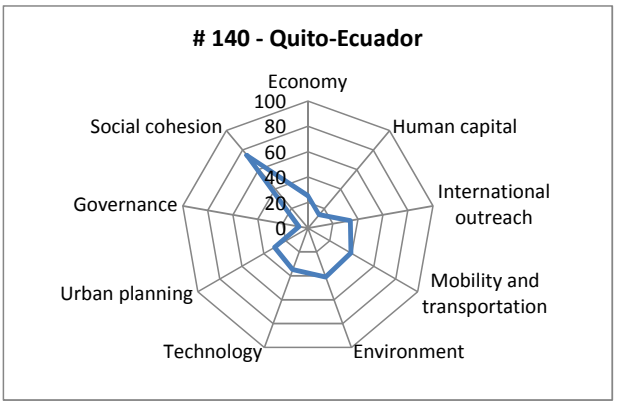

135 - Curitiba-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

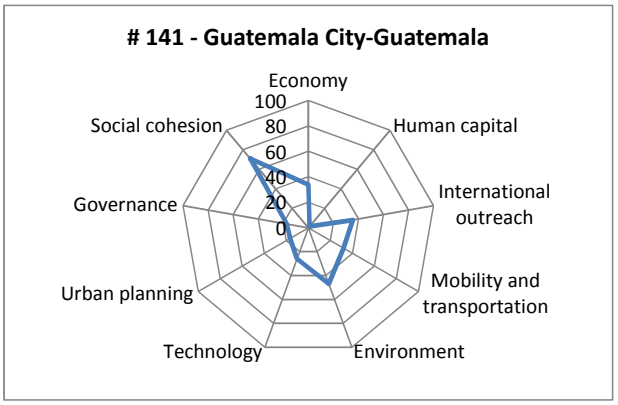
136 - Jakarta-Indonesia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

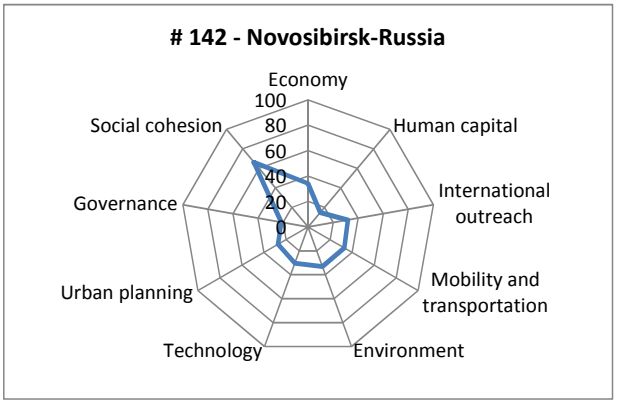

137 - Cali-Colombia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

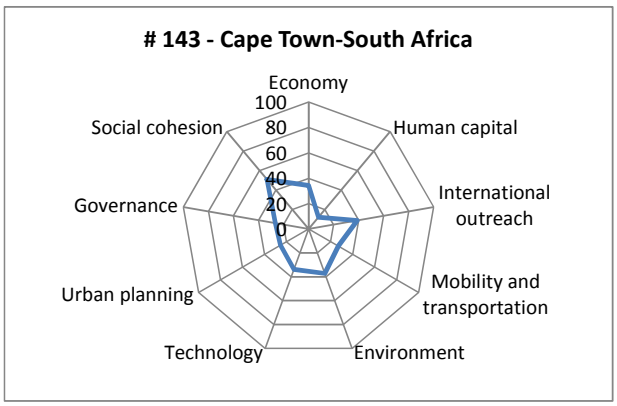

138 - Brasilia-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

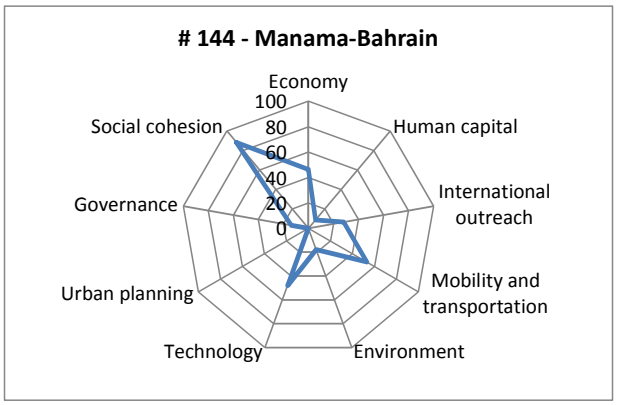

139 - Amman-Jordan
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

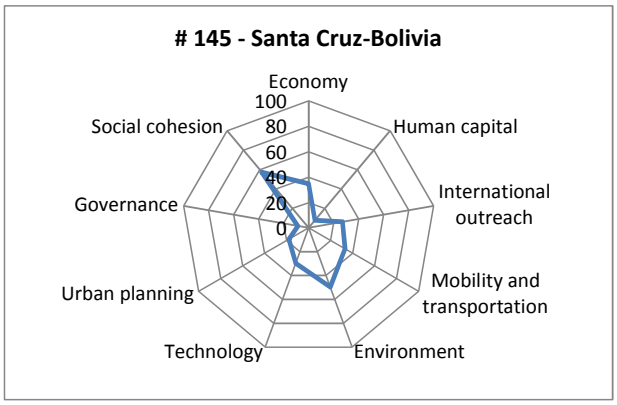

140 - Quito-Ecuador
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

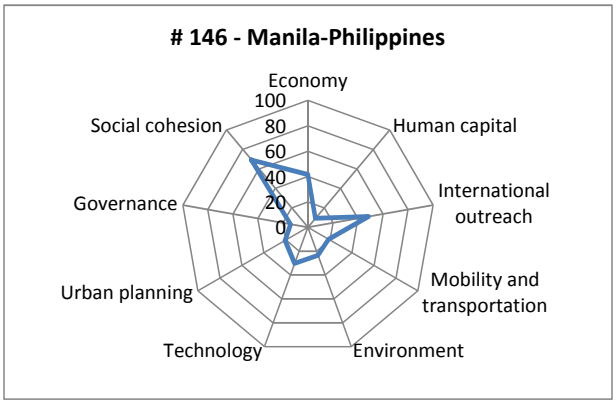

141 - Guatemala City-Guatemala
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

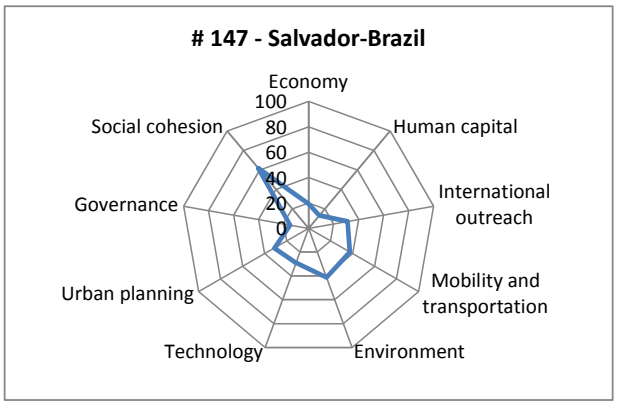

142 - Novosibirsk-Russia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

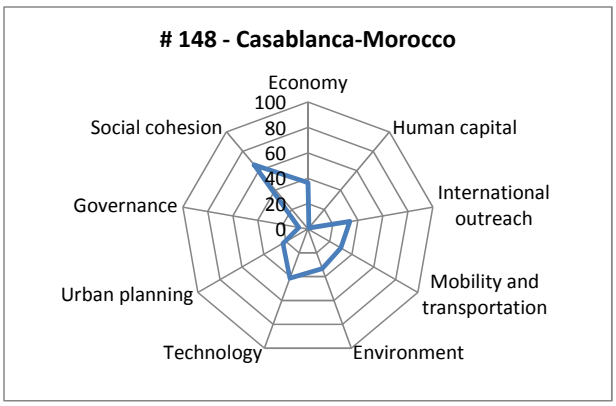

143 - Cape Town-South Africa
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

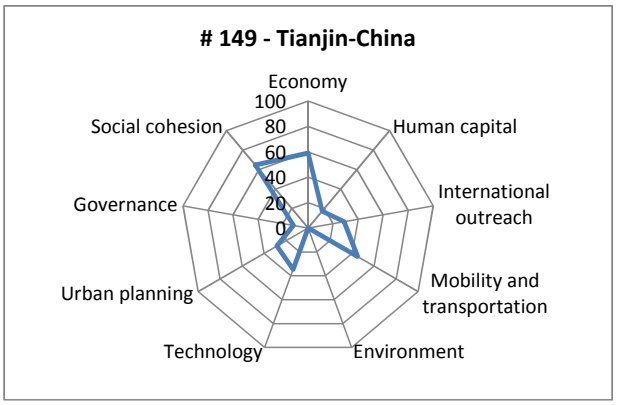

144 - Manama-Bahrain
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

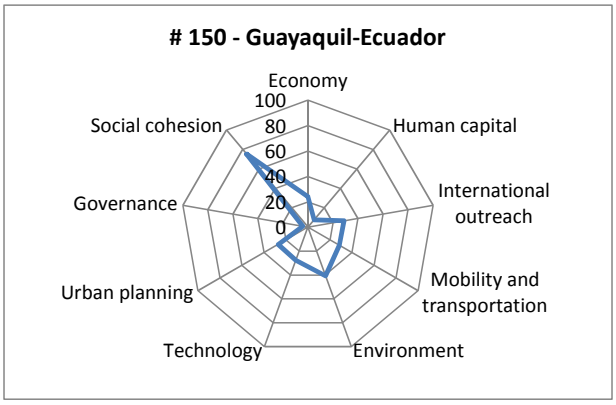

145 - Santa Cruz-Bolivia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

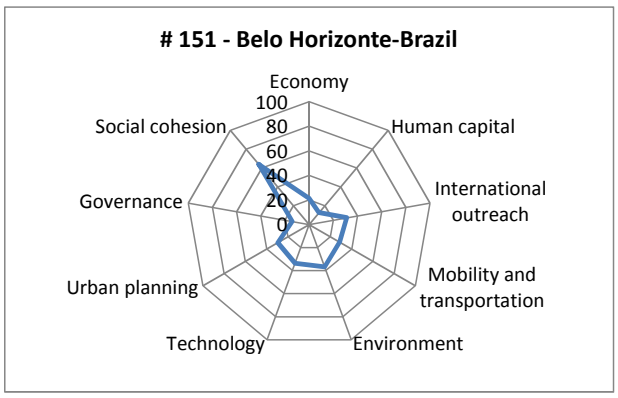

146 - Manila-Philippines
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

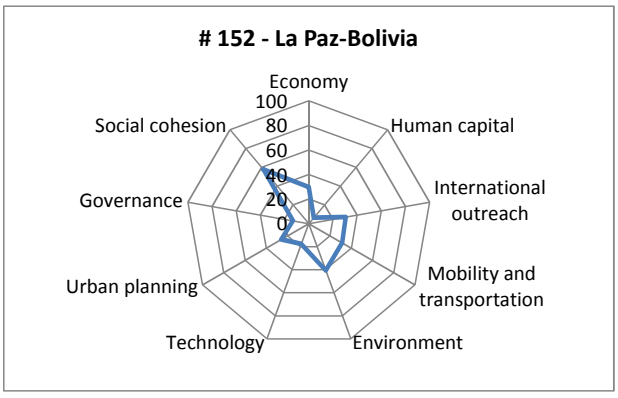

147 - Salvador-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

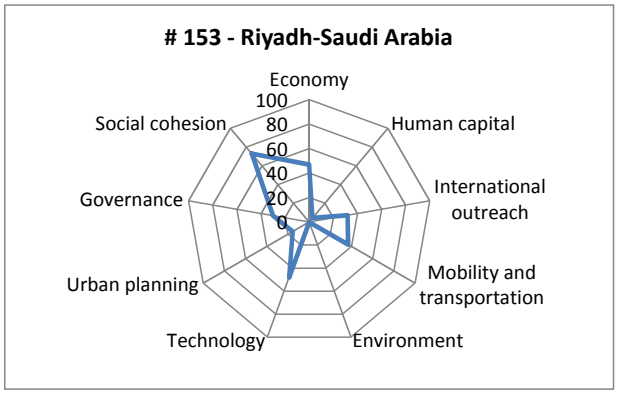

148 - Casablanca-Morocco
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

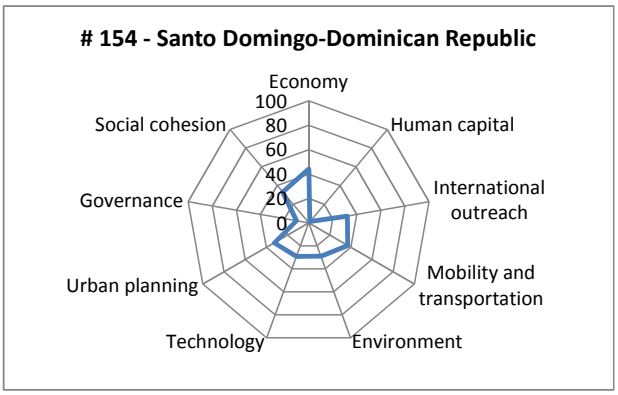

149 - Tianjin-China
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

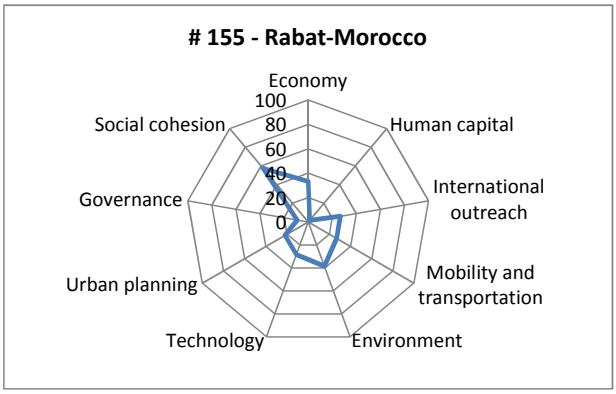

150 - Guayaquil-Ecuador
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

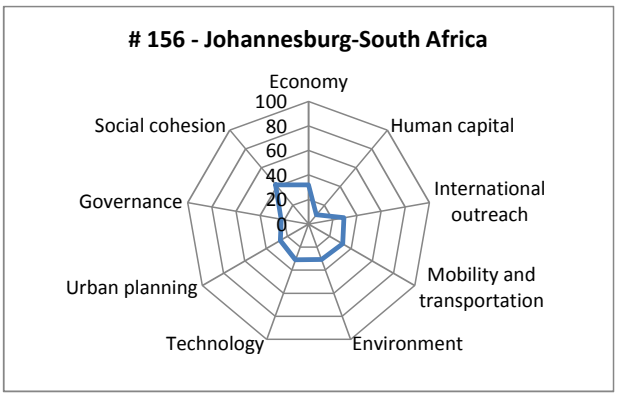

151 - Belo Horizonte-Brazil
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

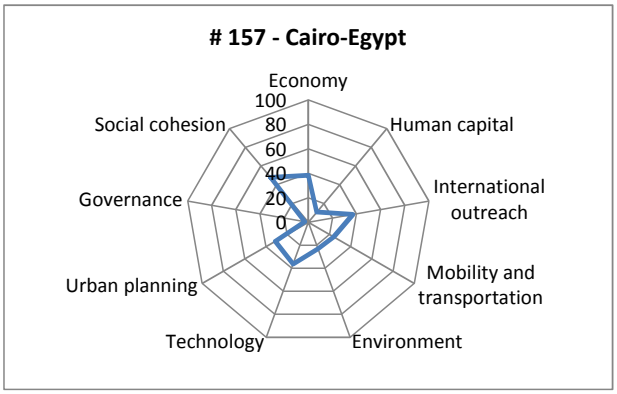

152 - La Paz-Bolivia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

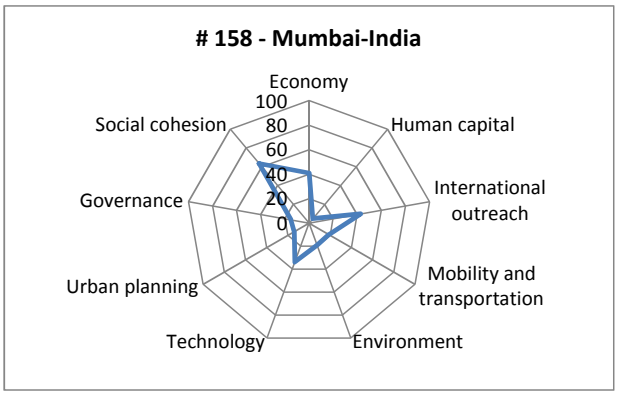

153 - Riyadh-Saudi Arabia
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


154 - Santo Domingo-Dominican Republic
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

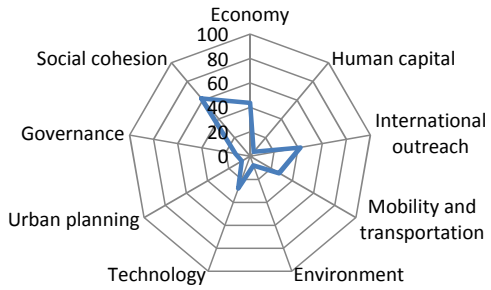

155 - Rabat-Morocco
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


156 - Johannesburg-South Africa
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

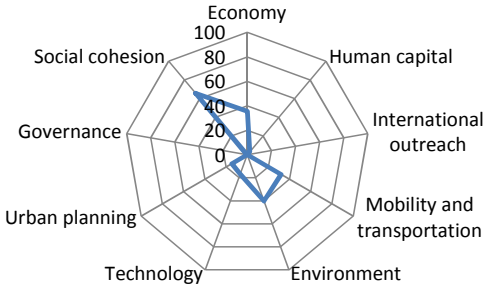

157 - Cairo-Egypt
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0


158 - Mumbai-India
Economy
Human capital
International outreach
Mobility and transportation
Environment
Technology
Urban planning
Governance
Social cohesion
100
80
60
40
20
0

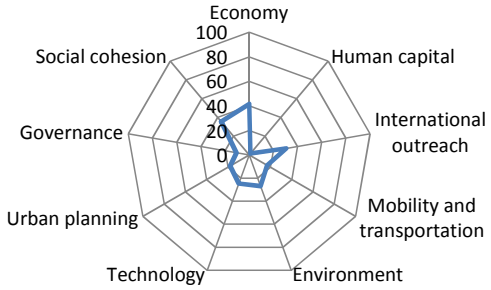
 # 159 - New Delhi-India



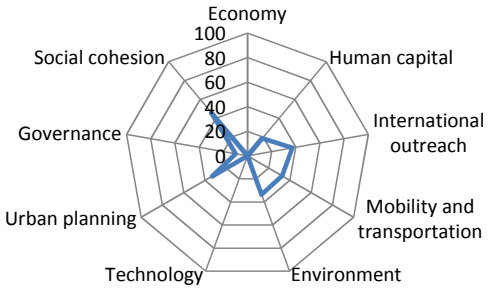
 # 160 - Douala-Cameroon



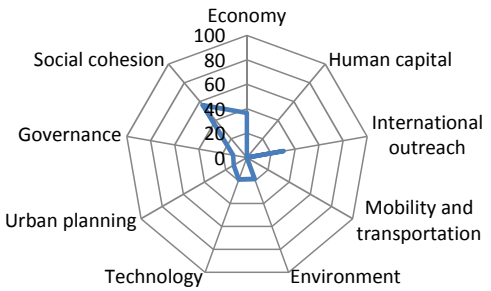
 # 161 - Nairobi-Kenya



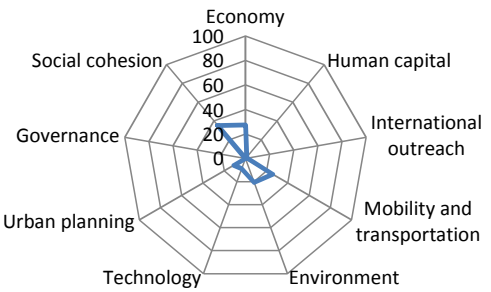
 # 162 - Caracas-Venezuela



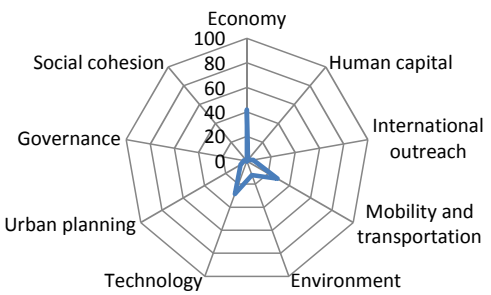
 # 163 - Kolkata-India



 # 164 - Lagos-Nigeria



 # 165 - Karachi-Pakistan



IESE Business School
University of Navarra

www.iese.edu

A WAY TO LEARN
A MARK TO MAKE
A WORLD TO CHANGE

Follow us

IESE Business School

IESE Business School

iesebs

iese

Barcelona
Av. Pearson, 21
08034 Barcelona, Spain
(+ 34) 93 253 42 00

Madrid
Camino del Cerro
del Águila, 3
28023 Madrid, Spain
(+34) 91 211 30 00

New York
165 W. 57th Street
New York,
NY 10019-2201 USA
(+1) 646 346 8850

Munich
Maria-Theresia-Straße 15
81675 Munich, Germany
(+49) 89 24 20 97 90

Sao Paulo
Rua Martiniano de
Carvalho, 573
Bela Vista
01321001 Sao Paulo,
Brazil
(+55) 11 3177 8221