# Smart City Index Report 2023





In partnership with



"I have never felt salvation in nature. I love cities above all."

Michelangelo

"The mark of a great city isn't how it treats its special places –everybody does that right – but how it treats its ordinary ones."

Aaron M. Renn
 (The Urban State of Mind: Meditations on the City)

#### Introduction

A New Beginning: A More Precise, Relevant and Impactful Smart City Index

Introduction: A More Precise, Relevant and Impactful Smart City Index

#### Welcome to the 2023 edition of the IMD Smart City Index Report (SCI Report).

This edition marks a significant step in the history of this report, which has now acquired global recognition and respect. After a break in 2022, three major changes have been brought to the Index and accompanying report.

| 1 | The World Smart Sustainable Cities<br>Organization (WeGO) has joined us as a<br>knowledge partner; |
|---|--|
| 2 | The number of cities in the SCI has significantly increased; and                                   |
| 3 | The SCI's methodology has been improved thanks to the acquisition of new data.                     |

Each of these changes has significant consequences. They make us even more enthusiastic about the impact and relevance of the Index, and about its future. Here's why:

#### A New Knowledge Partner

The World Smart Sustainable Cities Organization (WeGO), is a membership-based international association of local governments, smart tech solution providers, and institutions committed to the transformation of cities into smart, sustainable cities through facilitating public-private partnerships (PPP). It was founded by 50 member cities in 2010 as the World e-Governments Organization, hence the acronym. However, as the concept of "smart cities" continued evolving, during the 4th General Assembly (2017) WeGO expanded its mandate and changed its name to the World Smart Sustainable Cities Organization.

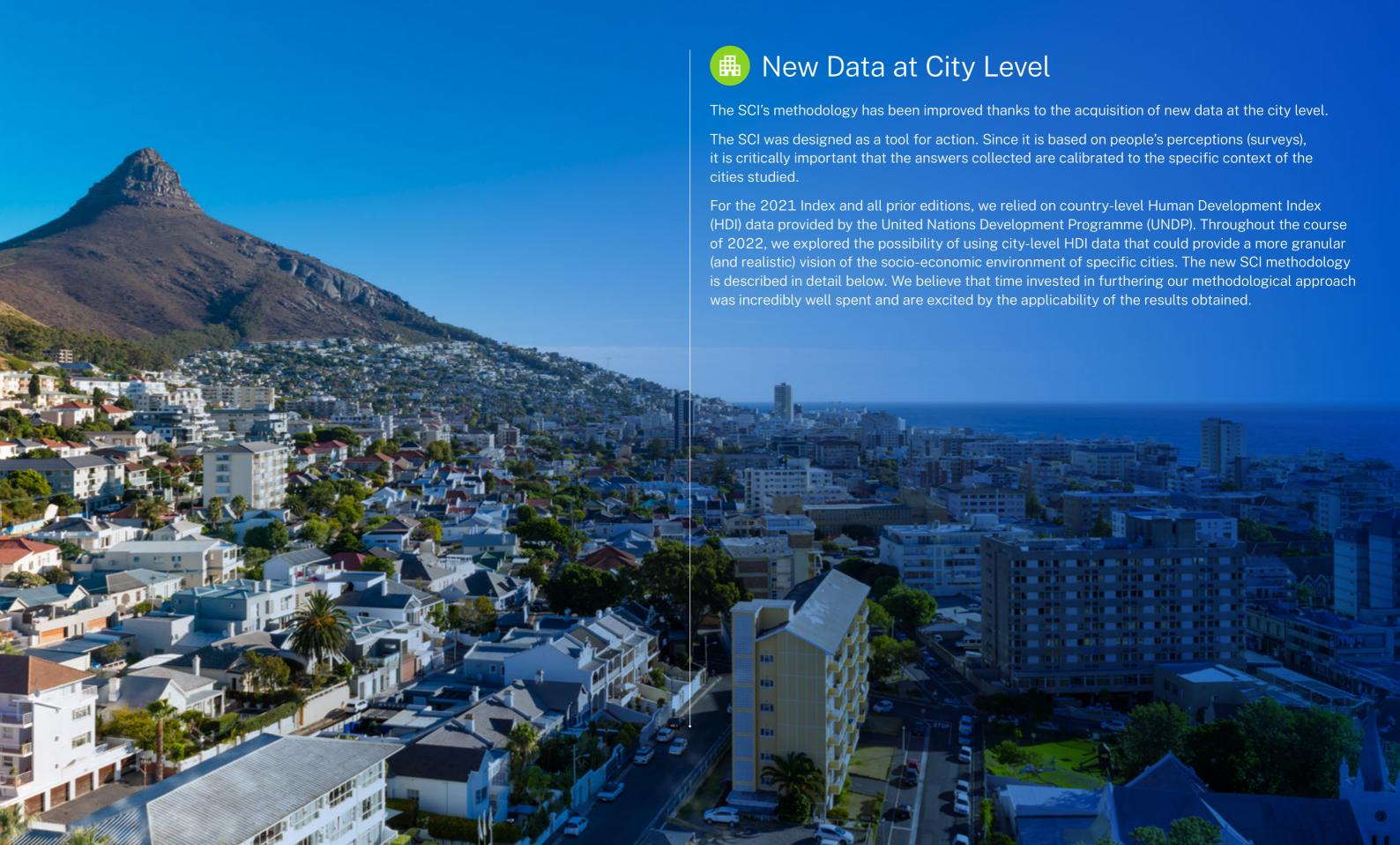
For its members, WeGO serves as an international platform to improve the quality of life, innovate in the delivery of public services, and strengthen regional competitiveness. The WeGO network currently includes over 200 cities, 26 are covered by this edition of the SCI index and report.

WeGO as a partner strives to support the development of humancentered cities and progress in seeking solutions to smart city challenges. WeGO's vision is set in the direction of mitigating the digital divide by providing smart cities with a guideline through the smart city index.

#### From 118 to 141 Cities

The coverage of the SCI and SCI Report has increased by 20 per cent to include 141 cities (previously 118 were measured), distributed across the world. This reflects the SCI's ongoing efforts to be a global index, and to facilitate the benchmarking of all kinds of cities, whatever their size or level of development. This year, we have made a concerted effort to include more capital cities from all continents, while keeping an eye on 'second-tier cities' showing signs of dynamism, and an appetite for designing and implementing innovative solutions to their key problems.

Introduction: A More Precise, Relevant and Impactful Smart City Index



Introduction: A More Precise, Relevant and Impactful Smart City Index

The SCI's value rests greatly on its ability to generate time series, and this is where citizens and decision makers can track the evolution of their city's performance over time, and compare it with that of other cities around the world. It follows that deciding to change an index's methodology isn't easy and often comes at the cost of breaking the continuity necessary to build such a series. We are proud to announce that in the case of the SCI, we have been able to not only improve the methodology but also to preserve our users' ability to work on time series. We did so by 'building back' the data and rankings that would have been those of the cities covered if the new methodology had been applied at the time. This means that the rankings of the SCI 2023 should not be compared to those published in previous SCI reports as they are the result of different approaches. However, comparisons across time can be made and used with recourse to the tables included in this report that reflect the 2019-2023 rankings of the cities covered using the most recent methodology. See pages 39-40 of this report.

Against the background of these three significant changes, what key messages emerge from this revamped 2023 Index and Report? They can be summarized as follows:

The global landscape of smart cities is changing, and lessons can be learned from the experience of "SCI champions"—the top 20.

Globally, a new world is shaping up, and changes at the city level are a precious indicator of what the future may hold.



Introduction: A More Precise, Relevant and Impactful Smart City Index

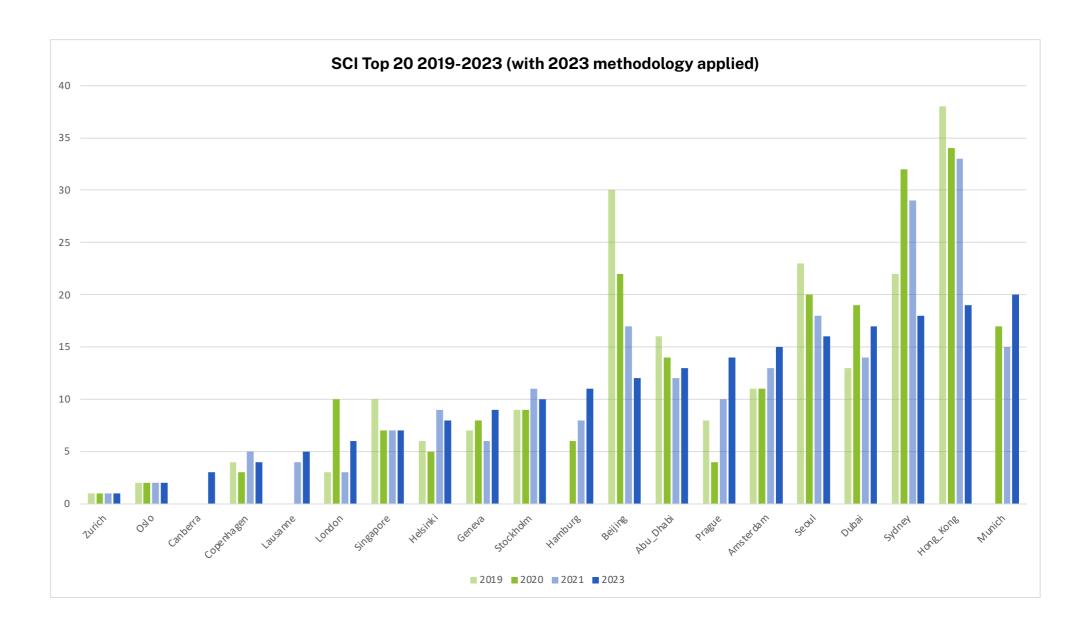
# Lessons from the champions: who is in the top 20, and how did they do it?

In 2023, the upper echelons of the SCI comprise the 20 cities in the table below. Rankings prior to 2023 have been adjusted according to the new methodology for the purposes of homogeneity and to allow comparison.

| City       | Rank 2023 | Rank 2021 | Rank 2020 | Rank 2019    |
|------------|-----------|-----------|-----------|--------------|
| Zurich     | 1         | 1         | 1         | 1            |
| Oslo       | 2         | 2         | 2         | 2            |
| Canberra   | 3         | _         | _         | _            |
| Copenhagen | 4         | 5         | 3         | 4            |
| Lausanne   | 5         | 4         | _         | <del>-</del> |
| London     | 6         | 3         | 10        | 3            |
| Singapore  | 7         | 7         | 7         | 10           |
| Helsinki   | 8         | 9         | 5         | 6            |
| Geneva     | 9         | 6         | 8         | 7            |
| Stockholm  | 10        | 11        | 9         | 9            |
| Hamburg    | 11        | 8         | 6         | _            |
| Beijing    | 12        | 17        | 22        | 30           |
| Abu Dhabi  | 13        | 12        | 14        | 16           |
| Prague     | 14        | 10        | 4         | 8            |
| Amsterdam  | 15        | 13        | 11        | 11           |
| Seoul      | 16        | 18        | 20        | 23           |
| Dubai      | 17        | 14        | 19        | 13           |
| Sydney     | 18        | 29        | 32        | 22           |
| Hong Kong  | 19        | 33        | 34        | 38           |

# Introduction: A More Precise, Relevant and Impactful Smart City Index

Several observations can be made by analyzing this list. Most strikingly, out of the top 20, 17 cities have been part of the SCI since its creation. Among those 17, six cities show either a continuous improvement or stability, year-upon-year. These 'super-champions' are: Zurich, Oslo, Singapore, Beijing, Seoul, and Hong Kong.)



Introduction: A More Precise, Relevant and Impactful Smart City Index

# A New World is Shaping Up. Cities Tell Us Where to Look

- 1. Asia and Europe ahead of the pack? Apart from Abu Dhabi and Dubai, all of the cities occupying the top 20 are either in Europe or in Asia-Pacific. The absence of American or African cities is notable. New York ranks 22nd while Cairo (108th) is the leading African city. Medellin (118th) is the leading South American one. The 2023 rankings reflect a growing interest and higher levels of concern about the quality of life that residents are expecting to enjoy in their respective cities. Size is often a handicap rather than an advantage in this regard. This explains why most large metropolises such as Boston (34th) or Paris (46th) rank relatively low in the index, in spite of remarkable progress in a number of key areas such as sustainability and mobility.
- 2. 'Second tier' cities continue to do better than the rest.
  Although the SCI's top 20 include 12 capital cities (such as Oslo and Canberra), and several 'economic capitals' (like Zurich and Dubai), the picture is different when one looks at the top half of the rankings (1 to 70); a significant number of mediumsized cities show both solid positions and a continuous ability to move up. In Europe, this is the case for Lausanne, Munich and Bilbao, for example, and elsewhere in the world it rings true for Montreal, Mecca and Denver.
- 3. Smart city strategies are undergoing deep changes. The basic principle that led to the creation of the Smart City Index in 2019 was that if cities wanted to be smarter, they needed to be less technology-centric, and more human-focused. Since then, this way of conceiving the nature and purpose of smart cities has moved closer to being mainstream. Many city officials are now routinely using a variety of different expressions in lieu of 'smart cities': 'open and innovative cities',' inclusive and diverse cities', 'sustainable cities' and 'citizencentric cities' are becoming part of the new labelling of 'smart cities' that were. But this is not merely a semantic change; it reflects deep changes in the way smart cities (and cities in general) will be designed and managed. Thanks to its initial design and philosophy, the Smart City Index is emerging as a critical tool to benchmark progress along those new lines. The SCI's updated methodology will further enhance its relevance as these changes gather momentum.
- 4. Inclusion and diversity are emerging as key benchmarks for **success.** An increasing number of cities are deploying new efforts to encourage diversity and inclusion as part of their smart strategies, variously linked to strategies to attract or retain talent, or to pre-existing conditions. Higher levels of tolerance for immigrants and minorities are becoming a marker in the 'quality of life' category, and in 'leaving no one behind' - a key phrase in defining the future of smart cities. Moreover, cities continue to accept (and, sometimes, seek) new roles, as central governments strive to become more agile through decentralization. Even at the international level, at a time in which many multilateral efforts seem to be losing momentum at the nation-states level, cities and their leaders are becoming more visible. Openness and inter-city collaboration may very well become key components of the next wave of globalization.

#### Continuing to Improve the SCI

There are different ways to improve the quality of the SCI. Expanding the number of cities studied will always extend the scope of the index. Employing more focused data will improve the accuracy of the index and allow for a meaningful comparison among different qualities of cities. Finally, fine tuning the construction of the ranking improves its relevance as an action tool, and allows for better comparisons between cities. The 2023 SCI makes advances in all three dimensions.

As flagged earlier, the city coverage of the SCI index and report has increased by almost 20 per cent, bringing the total number of smart cities to 141. Using city-specific data for the construction of the Index was the focus of our research in 2022. In its new design, the SCI employs a city-specific measure of the HDI initially produced by the United Nations Development Program (UNDP).

HDI is a composite index that combines information about life expectancy, expected years of schooling and the mean years of education completed, as well as the per capita income of a country's citizens. Until this year, the SCI used country-level HDI information as a proxy to evaluate the dimensions of health, knowledge and standard of living in each city. The 2023 SCI features city-level HDI, provided by the Global Data Lab. This allows for a more accurate ranking of each city, whilst also allowing readers to compare the performance of any given city to that of the country in which it is found.

Finally, city-level HDI facilitates a more academically rigorous comparison among cities. The 2023 SCI standardizes the performance of a city with the average of the city-HDI and the average of the surveys. This allows for a meaningful classification of a city relative to all other cities covered by the Index.

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The IMD World Competitiveness Center

For over thirty years, the IMD World Competitiveness Center has pioneered research on how countries and companies compete to lay the foundations for sustainable value creation. The competitiveness of nations is probably one of the most significant developments in modern management and IMD is committed to leading the field.

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Content Manager

A Series of Tables Showcasing the Results in Different Ways

In 2023 City Ranking Order with HDI Context and 2019-2023 Ranking Comparison (2023 Methodology Applied)

|                      |                |            |             | Rankings |      |      |      |
|----------------------|----------------|------------|-------------|----------|------|------|------|
| Country              | Country<br>HDI | City       | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Switzerland          | 0.962          | Zurich     | 0.989       | 1        | 1    | 1    | 1    |
| Norway               | 0.961          | Oslo       | 0.98        | 2        | 2    | 2    | 2    |
| Australia            | 0.951          | Canberra   | 0.98        |          |      |      | 3    |
| Denmark              | 0.948          | Copenhagen | 0.967       | 4        | 3    | 5    | 4    |
| Switzerland          | 0.962          | Lausanne   | 0.966       |          |      | 4    | 5    |
| United Kingdom       | 0.929          | London     | 0.973       | 3        | 10   | 3    | 6    |
| Singapore            | 0.939          | Singapore  | 0.939       | 10       | 7    | 7    | 7    |
| Finland              | 0.94           | Helsinki   | 0.96        | 6        | 5    | 9    | 8    |
| Switzerland          | 0.962          | Geneva     | 0.966       | 7        | 8    | 6    | 9    |
| Sweden               | 0.947          | Stockholm  | 0.972       | 9        | 9    | 11   | 10   |
| Germany              | 0.942          | Hamburg    | 0.972       |          | 6    | 8    | 11   |
| China                | 0.768          | Beijing    | 0.907       | 30       | 22   | 17   | 12   |
| United Arab Emirates | 0.911          | Abu Dhabi  | 0.911       | 16       | 14   | 12   | 13   |
| Czech Rep.           | 0.889          | Prague     | 0.96        | 8        | 4    | 10   | 14   |
| Netherlands          | 0.941          | Amsterdam  | 0.962       | 11       | 11   | 13   | 15   |
| Korea South          | 0.925          | Seoul      | 0.952       | 23       | 20   | 18   | 16   |
| United Arab Emirates | 0.911          | Dubai      | 0.911       | 13       | 19   | 14   | 17   |
| Australia            | 0.951          | Sydney     | 0.952       | 22       | 32   | 29   | 18   |
| Hong Kong            | 0.949          | Hong Kong  | 0.946       | 38       | 34   | 33   | 19   |
| Germany              | 0.942          | Munich     | 0.95        |          | 17   | 15   | 20   |
| USA                  | 0.921          | New York   | 0.938       | 34       | 12   | 19   | 21   |
| New Zealand          | 0.937          | Auckland   | 0.951       | 5        | 15   | 16   | 22   |

|              |                |                 |             | Rankings |      |      |      |
|--------------|----------------|-----------------|-------------|----------|------|------|------|
| Country      | Country<br>HDI | City            | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| New Zealand  | 0.937          | Wellington      | 0.958       |          |      |      | 23   |
| Australia    | 0.951          | Brisbane        | 0.944       | 42       | 27   | 40   | 24   |
| China        | 0.768          | Shanghai        | 0.88        | 37       | 42   | 32   | 25   |
| Iceland      | 0.959          | Reykjavik       | 0.959       |          |      |      | 26   |
| Spain        | 0.905          | Bilbao          | 0.932       | 18       | 25   | 23   | 27   |
| Austria      | 0.916          | Vienna          | 0.942       | 12       | 18   | 20   | 28   |
| Taiwan       | 0.916          | Taipei City     | 0.916       | 24       | 23   | 25   | 29   |
| Saudi Arabia | 0.875          | Riyadh          | 0.9         | 55       | 44   | 39   | 30   |
| Australia    | 0.951          | Melbourne       | 0.948       | 35       | 33   | 36   | 31   |
| Estonia      | 0.89           | Tallinn         | 0.932       |          | 39   | 24   | 32   |
| Germany      | 0.942          | Berlin          | 0.959       | 19       | 21   | 21   | 33   |
| USA          | 0.921          | Boston          | 0.949       | 15       | 24   | 22   | 34   |
| Belgium      | 0.937          | Brussels        | 0.953       | 51       | 16   | 45   | 35   |
| Sweden       | 0.947          | Gothenburg      | 0.944       | 33       | 43   | 46   | 36   |
| Spain        | 0.905          | Madrid          | 0.94        | 25       | 30   | 37   | 37   |
| Germany      | 0.942          | Dusseldorf      | 0.939       | 17       | 37   | 27   | 38   |
| USA          | 0.921          | Washington D.C. | 0.94        | 26       | 13   | 26   | 39   |
| Canada       | 0.936          | Ottawa          | 0.943       |          |      |      | 40   |
| Netherlands  | 0.941          | Rotterdam       | 0.941       | 40       | 35   | 43   | 41   |
| Canada       | 0.936          | Vancouver       | 0.944       | 20       | 40   | 28   | 42   |
| Netherlands  | 0.941          | The Hague       | 0.941       | 36       | 38   | 35   | 43   |
| Poland       | 0.876          | Warsaw          | 0.926       | 14       | 48   | 41   | 44   |

In 2023 City Ranking Order with HDI Context and 2019-2023 Ranking Comparison (2023 Methodology Applied)

|              |                |             |             | Rankings |      |      |      |
|--------------|----------------|-------------|-------------|----------|------|------|------|
| Country      | Country<br>HDI | City        | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Luxembourg   | 0.93           | Luxembourg  | 0.93        |          |      |      | 45   |
| France       | 0.903          | Paris       | 0.949       | 39       | 47   | 49   | 46   |
| Slovenia     | 0.918          | Ljubljana   | 0.953       |          |      |      | 47   |
| Canada       | 0.936          | Toronto     | 0.943       | 29       | 46   | 31   | 48   |
| Korea South  | 0.925          | Busan       | 0.936       | 45       | 29   | 47   | 49   |
| USA          | 0.921          | Los Angeles | 0.931       | 44       | 36   | 30   | 50   |
| Italy        | 0.895          | Bologna     | 0.924       | 41       | 50   | 48   | 51   |
| Saudi Arabia | 0.875          | Месса       | 0.871       |          |      |      | 52   |
| USA          | 0.921          | Denver      | 0.942       | 27       | 31   | 34   | 53   |
| Spain        | 0.905          | Zaragoza    | 0.912       | 58       | 53   | 51   | 54   |
| USA          | 0.921          | Seattle     | 0.94        | 31       | 41   | 38   | 55   |
| Saudi Arabia | 0.875          | Jeddah      | 0.871       |          |      |      | 56   |
| Germany      | 0.942          | Hanover     | 0.93        | 43       | 51   | 53   | 57   |
| China        | 0.768          | Nanjing     | 0.81        | 65       | 59   | 57   | 58   |
| Qatar        | 0.855          | Doha        | 0.855       |          |      |      | 59   |
| China        | 0.768          | Zhuhai      | 0.799       | 53       | 56   | 52   | 60   |
| USA          | 0.921          | Chicago     | 0.929       | 57       | 54   | 56   | 61   |
| Slovakia     | 0.848          | Bratislava  | 0.944       | 32       | 26   | 42   | 62   |
| Ireland      | 0.945          | Dublin      | 0.95        | 21       | 28   | 44   | 63   |
| France       | 0.903          | Lyon        | 0.914       | 54       | 61   | 62   | 64   |
| Lithuania    | 0.875          | Vilnius     | 0.913       |          |      |      | 65   |
| China        | 0.768          | Shenzhen    | 0.799       | 61       | 66   | 60   | 66   |

|                |                |               |             | Rankings |      |      |      |
|----------------|----------------|---------------|-------------|----------|------|------|------|
| Country        | Country<br>HDI | City          | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| China          | 0.768          | Tianjin       | 0.844       | 48       | 45   | 50   | 67   |
| USA            | 0.921          | San Francisco | 0.931       | 28       | 49   | 54   | 68   |
| Canada         | 0.936          | Montreal      | 0.923       | 50       | 52   | 55   | 69   |
| China          | 0.768          | Hangzhou      | 0.801       | 66       | 60   | 63   | 70   |
| China          | 0.768          | Guangzhou     | 0.799       | 67       | 64   | 66   | 71   |
| Japan          | 0.925          | Tokyo         | 0.951       | 46       | 73   | 67   | 72   |
| United Kingdom | 0.929          | Manchester    | 0.915       |          | 57   | 58   | 73   |
| United Kingdom | 0.929          | Birmingham    | 0.913       | 63       | 68   | 73   | 74   |
| Spain          | 0.905          | Barcelona     | 0.916       | 56       | 58   | 70   | 75   |
| United Kingdom | 0.929          | Leeds         | 0.908       |          |      | 64   | 76   |
| United Kingdom | 0.929          | Newcastle     | 0.901       |          | 62   | 61   | 77   |
| France         | 0.903          | Bordeaux      | 0.9         |          |      | 68   | 78   |
| Poland         | 0.876          | Krakow        | 0.888       | 47       | 69   | 76   | 79   |
| United Kingdom | 0.929          | Glasgow       | 0.921       |          |      | 65   | 80   |
| Germany        | 0.942          | Kiel          | 0.921       |          |      | 72   | 81   |
| Italy          | 0.895          | Milan         | 0.915       | 52       | 70   | 69   | 82   |
| Latvia         | 0.863          | Riga          | 0.929       |          |      |      | 83   |
| France         | 0.903          | Lille         | 0.88        |          |      | 82   | 84   |
| Saudi Arabia   | 0.875          | Medina        | 0.871       |          |      | 79   | 85   |
| China          | 0.768          | Chongqing     | 0.774       | 69       | 65   | 74   | 86   |
| Hungary        | 0.846          | Budapest      | 0.922       | 64       | 63   | 78   | 87   |
| Thailand       | 0.8            | Bangkok       | 0.839       | 75       | 78   | 86   | 88   |

In 2023 City Ranking Order with HDI Context and 2019-2023 Ranking Comparison (2023 Methodology Applied)

|                  |                | I                | ı           | I        |      |      |      |
|------------------|----------------|------------------|-------------|----------|------|------|------|
|                  |                |                  |             | Rankings |      |      |      |
| Country          | Country<br>HDI | City             | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Malaysia         | 0.803          | Kuala Lumpur     | 0.858       | 59       | 71   | 80   | 89   |
| Turkey           | 0.838          | Ankara           | 0.854       | 73       | 74   | 75   | 90   |
| Israel           | 0.919          | Tel Aviv         | 0.919       | 49       | 55   | 59   | 91   |
| USA              | 0.921          | Philadelphia     | 0.923       | 71       | 79   | 85   | 92   |
| USA              | 0.921          | Phoenix          | 0.908       |          | 72   | 77   | 93   |
| Wales            | 0.929          | Cardiff          | 0.898       |          |      |      | 94   |
| Northern Ireland | 0.929          | Belfast          | 0.896       |          |      |      | 95   |
| Oman             | 0.816          | Muscat           | 0.816       |          |      |      | 96   |
| China            | 0.768          | Chengdu          | 0.74        | 74       | 77   | 84   | 97   |
| Japan            | 0.925          | Osaka            | 0.928       | 68       | 84   | 90   | 98   |
| Portugal         | 0.866          | Lisbon           | 0.9         | 62       | 75   | 81   | 99   |
| Vietnam          | 0.703          | Hanoi            | 0.744       | 77       | 82   | 89   | 100  |
| France           | 0.903          | Marseille        | 0.899       |          | 83   | 91   | 101  |
| Indonesia        | 0.705          | Jakarta          | 0.759       | 80       | 81   | 92   | 102  |
| Vietnam          | 0.703          | Ho Chi Minh City | 0.714       | 76       | 86   | 93   | 103  |
| Romania          | 0.821          | Bucharest        | 0.926       | 60       | 76   | 87   | 104  |
| India            | 0.633          | Delhi            | 0.73        | 78       | 85   | 94   | 105  |
| Croatia          | 0.858          | Zagreb           | 0.916       |          |      |      | 106  |
| Turkey           | 0.838          | Istanbul         | 0.867       |          |      | 88   | 107  |
| Egypt            | 0.731          | Cairo            | 0.779       | 96       | 100  | 105  | 108  |
| India            | 0.633          | Mumbai           | 0.688       | 83       | 89   | 95   | 109  |
| India            | 0.633          | Bengaluru        | 0.667       | 85       | 96   | 97   | 110  |

|              |                |              |             | Rankings |      |      |      |
|--------------|----------------|--------------|-------------|----------|------|------|------|
| Country      | Country<br>HDI | City         | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Bulgaria     | 0.795          | Sofia        | 0.856       | 87       | 87   | 103  | 111  |
| Indonesia    | 0.705          | Medan        | 0.711       | 89       | 94   | 96   | 112  |
| Greece       | 0.887          | Athens       | 0.909       | 94       | 98   | 108  | 113  |
| Indonesia    | 0.705          | Makassar     | 0.699       | 86       | 90   | 102  | 114  |
| Philippines  | 0.699          | Manila       | 0.76        | 93       | 95   | 100  | 115  |
| India        | 0.633          | Hyderabad    | 0.647       | 81       | 91   | 101  | 116  |
| Cyprus       | 0.896          | Nicosia      | 0.896       |          |      |      | 117  |
| Colombia     | 0.752          | Medellin     | 0.757       | 82       | 88   | 99   | 118  |
| Chile        | 0.855          | Santiago     | 0.886       | 79       | 102  | 107  | 119  |
| Pakistan     | 0.544          | Islamabad    | 0.659       |          |      |      | 120  |
| Mexico       | 0.758          | Mexico City  | 0.815       | 90       | 103  | 110  | 121  |
| Italy        | 0.895          | Rome         | 0.917       | 97       | 97   | 111  | 122  |
| Algeria      | 0.745          | Algiers      | 0.767       |          |      |      | 123  |
| Argentina    | 0.842          | Buenos Aires | 0.812       | 88       | 93   | 104  | 124  |
| South Africa | 0.713          | Cape Town    | 0.751       | 92       | 99   | 106  | 125  |
| Morocco      | 0.683          | Rabat        | 0.702       | 99       | 101  | 109  | 126  |
| Costa Rica   | 0.809          | San José     | 0.826       |          |      | 112  | 127  |
| Brazil       | 0.754          | Brasilia     | 0.816       |          |      |      | 128  |
| Colombia     | 0.752          | Bogota       | 0.797       | 91       | 104  | 113  | 129  |
| Brazil       | 0.754          | Sao Paulo    | 0.78        | 95       | 108  | 117  | 130  |
| Kenya        | 0.575          | Nairobi      | 0.636       | 100      | 107  | 115  | 131  |
| Nigeria      | 0.535          | Lagos        | 0.681       | 101      | 105  | 116  | 132  |

In 2023 City Ranking Order with HDI Context and 2019-2023 Ranking Comparison (2023 Methodology Applied)

|           |                |                |             | Rankings |      |      |      |
|-----------|----------------|----------------|-------------|----------|------|------|------|
| Country   | Country<br>HDI | City           | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Nigeria   | 0.535          | Abuja          | 0.646       | 98       | 106  | 114  | 133  |
| Peru      | 0.762          | Lima           | 0.82        |          |      |      | 134  |
| Jordan    | 0.72           | Amman          | 0.737       |          |      |      | 135  |
| Brazil    | 0.754          | Rio de Janeiro | 0.783       | 102      | 109  | 118  | 136  |
| Tunisia   | 0.731          | Tunis          | 0.775       |          |      |      | 137  |
| Ghana     | 0.632          | Accra          | 0.707       |          |      |      | 138  |
| Lebanon   | 0.706          | Beirut         | 0.677       |          |      |      | 139  |
| Yemen     | 0.455          | Sana'a         | 0.521       |          |      |      | 140  |
| Guatemala | 0.627          | Guatemala City | 0.722       |          |      |      | 141  |

In Alphabetical Order By City with 2023 Deep Dive and 2021 Comparison (2023 Methodology Applied)

| City       | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure 2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|------------|-------------------------------|---------------------------------|----------------|--------------------|-------------------------|------------|
| Abu Dhabi  | 13                            | BB                              | BB             | BB                 | 12                      | ▼ -1       |
| Abuja      | 133                           | D                               | С              | D                  | 114                     | ▼ -19      |
| Accra      | 138                           | D                               | D              | D                  | NEW                     | _          |
| Algiers    | 123                           | С                               | С              | С                  | NEW                     | _          |
| Amman      | 135                           | D                               | D              | D                  | NEW                     | _          |
| Amsterdam  | 15                            | Α                               | BBB            | Α                  | 13                      | ▼ -2       |
| Ankara     | 90                            | CCC                             | В              | CCC                | 75                      | ▼ -15      |
| Athens     | 113                           | С                               | С              | С                  | 108                     | ▼ -5       |
| Auckland   | 22                            | Α                               | Α              | Α                  | 16                      | ▼ -6       |
| Bangkok    | 88                            | В                               | CCC            | В                  | 86                      | ▼ -2       |
| Barcelona  | 75                            | BB                              | ВВ             | ВВ                 | 70                      | ▼ -5       |
| Beijing    | 12                            | BB                              | BB             | ВВ                 | 17                      | <b>A</b> 5 |
| Beirut     | 139                           | D                               | D              | D                  | NEW                     | _          |
| Belfast    | 95                            | CC                              | CCC            | CC                 | NEW                     | _          |
| Bengaluru  | 110                           | CC                              | CC             | CC                 | 97                      | ▼ -13      |
| Berlin     | 33                            | BBB                             | BBB            | BBB                | 21                      | ▼ -12      |
| Bilbao     | 27                            | BBB                             | BBB            | BBB                | 23                      | ▼ -4       |
| Birmingham | 74                            | BB                              | BB             | ВВ                 | 73                      | ▼ -1       |
| Bogota     | 129                           | D                               | D              | С                  | 113                     | ▼ -16      |
| Bologna    | 51                            | BB                              | BBB            | ВВ                 | 48                      | ▼ -3       |
| Bordeaux   | 78                            | CCC                             | CCC            | CC                 | 68                      | ▼ -10      |
| Boston     | 34                            | А                               | А              | А                  | 22                      | ▼ -12      |

| City         | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure<br>2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|--------------|-------------------------------|---------------------------------|-------------------|--------------------|-------------------------|------------|
| Brasilia     | 128                           | С                               | С                 | С                  | NEW                     | _          |
| Bratislava   | 62                            | BB                              | BB                | BBB                | 42                      | ▼ -20      |
| Brisbane     | 24                            | AA                              | Α                 | А                  | 40                      | ▲ 16       |
| Brussels     | 35                            | BBB                             | BB                | А                  | 45                      | ▲ 10       |
| Bucharest    | 104                           | CCC                             | CCC               | В                  | 87                      | ▼ -17      |
| Budapest     | 87                            | В                               | В                 | ВВ                 | 78                      | ▼ -9       |
| Buenos Aires | 124                           | С                               | С                 | С                  | 104                     | ▼ -20      |
| Busan        | 49                            | BB                              | BB                | BBB                | 47                      | ▼ -2       |
| Cairo        | 108                           | CC                              | С                 | CC                 | 105                     | ▼ -3       |
| Canberra     | 3                             | AA                              | AA                | А                  | NEW                     |            |
| Cape Town    | 125                           | С                               | С                 | С                  | 106                     | ▼ -19      |
| Cardiff      | 94                            | CC                              | CCC               | CC                 | NEW                     | _          |
| Chengdu      | 97                            | CCC                             | CCC               | CCC                | 84                      | ▼ -13      |
| Chicago      | 61                            | BB                              | BB                | BB                 | 56                      | ▼ -5       |
| Chongqing    | 86                            | CCC                             | CCC               | CCC                | 74                      | ▼ -12      |
| Copenhagen   | 4                             | AA                              | AAA               | А                  | 5                       | <b>A</b> 1 |
| Delhi        | 105                           | CC                              | CC                | CC                 | 94                      | ▼ -11      |
| Denver       | 53                            | BBB                             | BBB               | BBB                | 34                      | ▼ -19      |
| Doha         | 59                            | BB                              | BB                | В                  | NEW                     |            |
| Dubai        | 17                            | BB                              | BB                | В                  | 14                      | ▼ -3       |
| Dublin       | 63                            | BB                              | BB                | BBB                | 44                      | ▼ -19      |
| Dusseldorf   | 38                            | BB                              | BBB               | BB                 | 27                      | ▼ -11      |

In Alphabetical Order By City with 2023 Deep Dive and 2021 Comparison (2023 Methodology Applied)

| City             | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure 2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|------------------|-------------------------------|---------------------------------|----------------|--------------------|-------------------------|------------|
| Geneva           | 9                             | AA                              | AA             | А                  | 6                       | ▼ -3       |
| Glasgow          | 80                            | ВВ                              | ВВ             | В                  | 65                      | ▼ -15      |
| Gothenburg       | 36                            | А                               | А              | А                  | 46                      | ▲ 10       |
| Guangzhou        | 71                            | CCC                             | CCC            | CCC                | 66                      | ▼ -5       |
| Guatemala City   | 141                           | D                               | D              | D                  | NEW                     | _          |
| Hamburg          | 11                            | А                               | А              | BBB                | 8                       | ▼ -3       |
| Hangzhou         | 70                            | CCC                             | CCC            | CCC                | 63                      | ▼ -7       |
| Hanoi            | 100                           | CCC                             | CCC            | CCC                | 89                      | ▼ -11      |
| Hanover          | 57                            | ВВ                              | BBB            | В                  | 53                      | ▼ -4       |
| Helsinki         | 8                             | AAA                             | AA             | А                  | 9                       | <b>A</b> 1 |
| Ho Chi Minh City | 103                           | CCC                             | CCC            | CCC                | 93                      | ▼ -10      |
| Hong Kong        | 19                            | AA                              | BBB            | AAA                | 33                      | ▲ 14       |
| Hyderabad        | 116                           | CC                              | CC             | CC                 | 101                     | ▼ -15      |
| Islamabad        | 120                           | CC                              | CC             | CC                 | NEW                     | _          |
| Istanbul         | 107                           | CC                              | CC             | CC                 | 88                      | ▼ -19      |
| Jakarta          | 102                           | CC                              | CC             | CC                 | 92                      | ▼ -10      |
| Jeddah           | 56                            | В                               | В              | В                  | NEW                     | _          |
| Kiel             | 81                            | ВВ                              | BBB            | CCC                | 72                      | ▼ -9       |
| Krakow           | 79                            | CCC                             | В              | CCC                | 76                      | ▼ -3       |
| Kuala Lumpur     | 89                            | CCC                             | В              | CCC                | 80                      | ▼ -9       |
| Lagos            | 132                           | D                               | D              | С                  | 116                     | ▼ -16      |
| Lausanne         | 5                             | AA                              | AA             | А                  | 4                       | ▼ -1       |

| City        | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure 2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|-------------|-------------------------------|---------------------------------|----------------|--------------------|-------------------------|------------|
| Leeds       | 76                            | CCC                             | CCC            | CC                 | 64                      | ▼ -12      |
| Lille       | 84                            | CCC                             | CCC            | CCC                | 82                      | ▼ -2       |
| Lima        | 134                           | С                               | С              | С                  | NEW                     | _          |
| Lisbon      | 99                            | CC                              | CC             | CC                 | 81                      | ▼ -18      |
| Ljubljana   | 47                            | BBB                             | BB             | BBB                | NEW                     |            |
| London      | 6                             | А                               | BBB            | AA                 | 3                       | ▼ -3       |
| Los Angeles | 50                            | BB                              | BB             | BBB                | 30                      | ▼ -20      |
| Luxembourg  | 45                            | BB                              | BBB            | В                  | NEW                     |            |
| Lyon        | 64                            | BB                              | BB             | ВВ                 | 62                      | ▼ -2       |
| Madrid      | 37                            | BB                              | BB             | BBB                | 37                      | _          |
| Makassar    | 114                           | CC                              | CC             | CC                 | 102                     | ▼ -12      |
| Manchester  | 73                            | BB                              | BB             | ВВ                 | 58                      | ▼ -15      |
| Manila      | 115                           | С                               | С              | CC                 | 100                     | ▼ -15      |
| Marseille   | 101                           | CC                              | CC             | CC                 | 91                      | ▼ -10      |
| Mecca       | 52                            | В                               | В              | В                  | NEW                     | _          |
| Medan       | 112                           | CC                              | CC             | CC                 | 96                      | ▼ -16      |
| Medellin    | 118                           | С                               | С              | С                  | 99                      | ▼ -19      |
| Medina      | 85                            | CCC                             | CCC            | CCC                | 79                      | ▼ -6       |
| Melbourne   | 31                            | А                               | BBB            | А                  | 36                      | <b>A</b> 5 |
| Mexico City | 121                           | С                               | С              | CC                 | 110                     | ▼ -11      |
| Milan       | 82                            | BB                              | BB             | BB                 | 69                      | ▼ -13      |
| Montreal    | 69                            | BB                              | BBB            | В                  | 55                      | ▼ -14      |

In Alphabetical Order By City with 2023 Deep Dive and 2021 Comparison (2023 Methodology Applied)

| City           | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure 2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|----------------|-------------------------------|---------------------------------|----------------|--------------------|-------------------------|------------|
| Mumbai         | 109                           | CC                              | CC             | CCC                | 95                      | ▼ -14      |
| Munich         | 20                            | AA                              | AA             | Α                  | 15                      | ▼ -5       |
| Muscat         | 96                            | В                               | В              | CCC                | NEW                     | _          |
| Nairobi        | 131                           | С                               | С              | С                  | 115                     | ▼ -16      |
| Nanjing        | 58                            | CCC                             | CCC            | CCC                | 57                      | ▼ -1       |
| New York       | 21                            | BBB                             | BBB            | А                  | 19                      | ▼ -2       |
| Newcastle      | 77                            | CCC                             | В              | CC                 | 61                      | ▼ -16      |
| Nicosia        | 117                           | С                               | CC             | С                  | NEW                     | _          |
| Osaka          | 98                            | В                               | BB             | CCC                | 90                      | ▼ -8       |
| Oslo           | 2                             | AAA                             | AAA            | А                  | 2                       | _          |
| Ottawa         | 40                            | А                               | AA             | BBB                | NEW                     | _          |
| Paris          | 46                            | BBB                             | BB             | А                  | 49                      | <b>A</b> 3 |
| Philadelphia   | 92                            | В                               | В              | В                  | 85                      | ▼ -7       |
| Phoenix        | 93                            | CC                              | CCC            | CC                 | 77                      | ▼ -16      |
| Prague         | 14                            | AA                              | А              | А                  | 10                      | ▼ -4       |
| Rabat          | 126                           | С                               | С              | С                  | 109                     | ▼ -17      |
| Reykjavik      | 26                            | BBB                             | А              | BBB                | NEW                     | _          |
| Riga           | 83                            | В                               | В              | В                  | NEW                     | _          |
| Rio de Janeiro | 136                           | D                               | D              | D                  | 118                     | ▼ -18      |
| Riyadh         | 30                            | BB                              | В              | BB                 | 39                      | <b>A</b> 9 |
| Rome           | 122                           | CCC                             | CCC            | CCC                | 111                     | ▼ -11      |
| Rotterdam      | 41                            | А                               | BBB            | А                  | 43                      | <b>A</b> 2 |

| City          | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure<br>2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change     |
|---------------|-------------------------------|---------------------------------|-------------------|--------------------|-------------------------|------------|
| San Francisco | 68                            | BB                              | BB                | ВВ                 | 54                      | ▼ -14      |
| San José      | 127                           | С                               | CC                | С                  | 112                     | ▼ -15      |
| Sana'a        | 140                           | D                               | D                 | D                  | NEW                     | _          |
| Santiago      | 119                           | С                               | С                 | С                  | 107                     | ▼ -12      |
| Sao Paulo     | 130                           | D                               | D                 | С                  | 117                     | ▼ -13      |
| Seattle       | 55                            | BB                              | BB                | В                  | 38                      | ▼ -17      |
| Seoul         | 16                            | AA                              | BBB               | AAA                | 18                      | <b>▲</b> 2 |
| Shanghai      | 25                            | BB                              | BB                | ВВ                 | 32                      | <b>A</b> 7 |
| Shenzhen      | 66                            | CCC                             | CCC               | CCC                | 60                      | ▼ -6       |
| Singapore     | 7                             | Α                               | А                 | А                  | 7                       | _          |
| Sofia         | 111                           | CC                              | CC                | CC                 | 103                     | ▼ -8       |
| Stockholm     | 10                            | Α                               | А                 | Α                  | 11                      | <b>A</b> 1 |
| Sydney        | 18                            | AA                              | Α                 | AA                 | 29                      | ▲ 11       |
| Taipei City   | 29                            | Α                               | BBB               | А                  | 25                      | ▼ -4       |
| Tallinn       | 32                            | BBB                             | BBB               | BB                 | 24                      | ▼ -8       |
| Tel Aviv      | 91                            | В                               | В                 | BB                 | 59                      | ▼ -32      |
| The Hague     | 43                            | Α                               | Α                 | Α                  | 35                      | ▼ -8       |
| Tianjin       | 67                            | BB                              | В                 | BB                 | 50                      | ▼ -17      |
| Tokyo         | 72                            | BB                              | ВВ                | BB                 | 67                      | ▼ -5       |
| Toronto       | 48                            | BBB                             | BBB               | BBB                | 31                      | ▼ -17      |
| Tunis         | 137                           | D                               | D                 | D                  | NEW                     | _          |
| Vancouver     | 42                            | А                               | А                 | BBB                | 28                      | ▼ -14      |

In Alphabetical Order By City with 2023 Deep Dive and 2021 Comparison (2023 Methodology Applied)

| City            | Smart<br>City<br>Rank<br>2023 | Smart<br>City<br>Rating<br>2023 | Structure<br>2023 | Technology<br>2023 | Smart City<br>Rank 2021 | Change |
|-----------------|-------------------------------|---------------------------------|-------------------|--------------------|-------------------------|--------|
| Vienna          | 28                            | AA                              | AA                | А                  | 20                      | ▼ -8   |
| Vilnius         | 65                            | BB                              | BB                | BBB                | NEW                     | _      |
| Warsaw          | 44                            | BBB                             | BBB               | BBB                | 41                      | ▼ -3   |
| Washington D.C. | 39                            | BB                              | BB                | BB                 | 26                      | ▼ -13  |
| Wellington      | 23                            | Α                               | Α                 | BBB                | NEW                     | _      |
| Zagreb          | 106                           | CCC                             | В                 | CCC                | NEW                     | _      |
| Zaragoza        | 54                            | CCC                             | В                 | CC                 | 51                      | ▼ -3   |
| Zhuhai          | 60                            | CCC                             | CCC               | CCC                | 52                      | ▼ -8   |
| Zurich          | 1                             | AAA                             | AAA               | А                  | 1                       | _      |

In Alphabetical Order by City with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|                      |                |            |             | Rankings |      |      |      |
|----------------------|----------------|------------|-------------|----------|------|------|------|
| Country              | Country<br>HDI | City       | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| United Arab Emirates | 0.911          | Abu Dhabi  | 0.911       | 16       | 14   | 12   | 13   |
| Nigeria              | 0.535          | Abuja      | 0.646       | 98       | 106  | 114  | 133  |
| Ghana                | 0.632          | Accra      | 0.707       |          |      |      | 138  |
| Algeria              | 0.745          | Algiers    | 0.767       |          |      |      | 123  |
| Jordan               | 0.72           | Amman      | 0.737       |          |      |      | 135  |
| Netherlands          | 0.941          | Amsterdam  | 0.962       | 11       | 11   | 13   | 15   |
| Turkey               | 0.838          | Ankara     | 0.854       | 73       | 74   | 75   | 90   |
| Greece               | 0.887          | Athens     | 0.909       | 94       | 98   | 108  | 113  |
| New Zealand          | 0.937          | Auckland   | 0.951       | 5        | 15   | 16   | 22   |
| Thailand             | 0.8            | Bangkok    | 0.839       | 75       | 78   | 86   | 88   |
| Spain                | 0.905          | Barcelona  | 0.916       | 56       | 58   | 70   | 75   |
| China                | 0.768          | Beijing    | 0.907       | 30       | 22   | 17   | 12   |
| Lebanon              | 0.706          | Beirut     | 0.677       |          |      |      | 139  |
| Northern Ireland     | 0.929          | Belfast    | 0.896       |          |      |      | 95   |
| India                | 0.633          | Bengaluru  | 0.667       | 85       | 96   | 97   | 110  |
| Germany              | 0.942          | Berlin     | 0.959       | 19       | 21   | 21   | 33   |
| Spain                | 0.905          | Bilbao     | 0.932       | 18       | 25   | 23   | 27   |
| United Kingdom       | 0.929          | Birmingham | 0.913       | 63       | 68   | 73   | 74   |
| Colombia             | 0.752          | Bogota     | 0.797       | 91       | 104  | 113  | 129  |
| Italy                | 0.895          | Bologna    | 0.924       | 41       | 50   | 48   | 51   |
| France               | 0.903          | Bordeaux   | 0.9         |          |      | 68   | 78   |
| Usa                  | 0.921          | Boston     | 0.949       | 15       | 24   | 22   | 34   |

|                      |                |              |             | Rankings |      |      |      |
|----------------------|----------------|--------------|-------------|----------|------|------|------|
| Country              | Country<br>HDI | City         | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Brazil               | 0.754          | Brasilia     | 0.816       |          |      |      | 128  |
| Slovakia             | 0.848          | Bratislava   | 0.944       | 32       | 26   | 42   | 62   |
| Australia            | 0.951          | Brisbane     | 0.944       | 42       | 27   | 40   | 24   |
| Belgium              | 0.937          | Brussels     | 0.953       | 51       | 16   | 45   | 35   |
| Romania              | 0.821          | Bucharest    | 0.926       | 60       | 76   | 87   | 104  |
| Hungary              | 0.846          | Budapest     | 0.922       | 64       | 63   | 78   | 87   |
| Argentina            | 0.842          | Buenos Aires | 0.812       | 88       | 93   | 104  | 124  |
| Korea South          | 0.925          | Busan        | 0.936       | 45       | 29   | 47   | 49   |
| Egypt                | 0.731          | Cairo        | 0.779       | 96       | 100  | 105  | 108  |
| Australia            | 0.951          | Canberra     | 0.98        |          |      |      | 3    |
| South Africa         | 0.713          | Cape Town    | 0.751       | 92       | 99   | 106  | 125  |
| Wales                | 0.929          | Cardiff      | 0.898       |          |      |      | 94   |
| China                | 0.768          | Chengdu      | 0.74        | 74       | 77   | 84   | 97   |
| Usa                  | 0.921          | Chicago      | 0.929       | 57       | 54   | 56   | 61   |
| China                | 0.768          | Chongqing    | 0.774       | 69       | 65   | 74   | 86   |
| Denmark              | 0.948          | Copenhagen   | 0.967       | 4        | 3    | 5    | 4    |
| India                | 0.633          | Delhi        | 0.73        | 78       | 85   | 94   | 105  |
| Usa                  | 0.921          | Denver       | 0.942       | 27       | 31   | 34   | 53   |
| Qatar                | 0.855          | Doha         | 0.855       |          |      |      | 59   |
| United Arab Emirates | 0.911          | Dubai        | 0.911       | 13       | 19   | 14   | 17   |
| Ireland              | 0.945          | Dublin       | 0.95        | 21       | 28   | 44   | 63   |
| Germany              | 0.942          | Dusseldorf   | 0.939       | 17       | 37   | 27   | 38   |

In Alphabetical Order by City with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|                |                |                  |             | Rankings |      |      |      |
|----------------|----------------|------------------|-------------|----------|------|------|------|
| Country        | Country<br>HDI | City             | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Switzerland    | 0.962          | Geneva           | 0.966       | 7        | 8    | 6    | 9    |
| United Kingdom | 0.929          | Glasgow          | 0.921       |          |      | 65   | 80   |
| Sweden         | 0.947          | Gothenburg       | 0.944       | 33       | 43   | 46   | 36   |
| China          | 0.768          | Guangzhou        | 0.799       | 67       | 64   | 66   | 71   |
| Guatemala      | 0.627          | Guatemala City   | 0.722       |          |      |      | 141  |
| Germany        | 0.942          | Hamburg          | 0.972       |          | 6    | 8    | 11   |
| China          | 0.768          | Hangzhou         | 0.801       | 66       | 60   | 63   | 70   |
| Vietnam        | 0.703          | Hanoi            | 0.744       | 77       | 82   | 89   | 100  |
| Germany        | 0.942          | Hanover          | 0.93        | 43       | 51   | 53   | 57   |
| Finland        | 0.94           | Helsinki         | 0.96        | 6        | 5    | 9    | 8    |
| Vietnam        | 0.703          | Ho Chi Minh City | 0.714       | 76       | 86   | 93   | 103  |
| Hong Kong      | 0.949          | Hong Kong        | 0.946       | 38       | 34   | 33   | 19   |
| India          | 0.633          | Hyderabad        | 0.647       | 81       | 91   | 101  | 116  |
| Pakistan       | 0.544          | Islamabad        | 0.659       |          |      |      | 120  |
| Turkey         | 0.838          | Istanbul         | 0.867       |          |      | 88   | 107  |
| Indonesia      | 0.705          | Jakarta          | 0.759       | 80       | 81   | 92   | 102  |
| Saudi Arabia   | 0.875          | Jeddah           | 0.871       |          |      |      | 56   |
| Germany        | 0.942          | Kiel             | 0.921       |          |      | 72   | 81   |
| Poland         | 0.876          | Krakow           | 0.888       | 47       | 69   | 76   | 79   |
| Malaysia       | 0.803          | Kuala Lumpur     | 0.858       | 59       | 71   | 80   | 89   |
| Nigeria        | 0.535          | Lagos            | 0.681       | 101      | 105  | 116  | 132  |
| Switzerland    | 0.962          | Lausanne         | 0.966       |          |      | 4    | 5    |

|                |                |             |             | Rankings |      |      |      |
|----------------|----------------|-------------|-------------|----------|------|------|------|
| Country        | Country<br>HDI | City        | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| United Kingdom | 0.929          | Leeds       | 0.908       |          |      | 64   | 76   |
| France         | 0.903          | Lille       | 0.88        |          |      | 82   | 84   |
| Peru           | 0.762          | Lima        | 0.82        |          |      |      | 134  |
| Portugal       | 0.866          | Lisbon      | 0.9         | 62       | 75   | 81   | 99   |
| Slovenia       | 0.918          | Ljubljana   | 0.953       |          |      |      | 47   |
| United Kingdom | 0.929          | London      | 0.973       | 3        | 10   | 3    | 6    |
| Usa            | 0.921          | Los Angeles | 0.931       | 44       | 36   | 30   | 50   |
| Luxembourg     | 0.93           | Luxembourg  | 0.93        |          |      |      | 45   |
| France         | 0.903          | Lyon        | 0.914       | 54       | 61   | 62   | 64   |
| Spain          | 0.905          | Madrid      | 0.94        | 25       | 30   | 37   | 37   |
| Indonesia      | 0.705          | Makassar    | 0.699       | 86       | 90   | 102  | 114  |
| United Kingdom | 0.929          | Manchester  | 0.915       |          | 57   | 58   | 73   |
| Philippines    | 0.699          | Manila      | 0.76        | 93       | 95   | 100  | 115  |
| France         | 0.903          | Marseille   | 0.899       |          | 83   | 91   | 101  |
| Saudi Arabia   | 0.875          | Mecca       | 0.871       |          |      |      | 52   |
| Indonesia      | 0.705          | Medan       | 0.711       | 89       | 94   | 96   | 112  |
| Colombia       | 0.752          | Medellin    | 0.757       | 82       | 88   | 99   | 118  |
| Saudi Arabia   | 0.875          | Medina      | 0.871       |          |      | 79   | 85   |
| Australia      | 0.951          | Melbourne   | 0.948       | 35       | 33   | 36   | 31   |
| Mexico         | 0.758          | Mexico City | 0.815       | 90       | 103  | 110  | 121  |
| Italy          | 0.895          | Milan       | 0.915       | 52       | 70   | 69   | 82   |
| Canada         | 0.936          | Montreal    | 0.923       | 50       | 52   | 55   | 69   |

In Alphabetical Order by City with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|                |                |                |             | Rankings |      |      |      |
|----------------|----------------|----------------|-------------|----------|------|------|------|
| Country        | Country<br>HDI | City           | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| India          | 0.633          | Mumbai         | 0.688       | 83       | 89   | 95   | 109  |
| Germany        | 0.942          | Munich         | 0.95        |          | 17   | 15   | 20   |
| Oman           | 0.816          | Muscat         | 0.816       |          |      |      | 96   |
| Kenya          | 0.575          | Nairobi        | 0.636       | 100      | 107  | 115  | 131  |
| China          | 0.768          | Nanjing        | 0.81        | 65       | 59   | 57   | 58   |
| Usa            | 0.921          | New York       | 0.938       | 34       | 12   | 19   | 21   |
| United Kingdom | 0.929          | Newcastle      | 0.901       |          | 62   | 61   | 77   |
| Cyprus         | 0.896          | Nicosia        | 0.896       |          |      |      | 117  |
| Japan          | 0.925          | Osaka          | 0.928       | 68       | 84   | 90   | 98   |
| Norway         | 0.961          | Oslo           | 0.98        | 2        | 2    | 2    | 2    |
| Canada         | 0.936          | Ottawa         | 0.943       |          |      |      | 40   |
| France         | 0.903          | Paris          | 0.949       | 39       | 47   | 49   | 46   |
| Usa            | 0.921          | Philadelphia   | 0.923       | 71       | 79   | 85   | 92   |
| Usa            | 0.921          | Phoenix        | 0.908       |          | 72   | 77   | 93   |
| Czech Rep.     | 0.889          | Prague         | 0.96        | 8        | 4    | 10   | 14   |
| Morocco        | 0.683          | Rabat          | 0.702       | 99       | 101  | 109  | 126  |
| Iceland        | 0.959          | Reykjavik      | 0.959       |          |      |      | 26   |
| Latvia         | 0.863          | Riga           | 0.929       |          |      |      | 83   |
| Brazil         | 0.754          | Rio De Janeiro | 0.783       | 102      | 109  | 118  | 136  |
| Saudi Arabia   | 0.875          | Riyadh         | 0.9         | 55       | 44   | 39   | 30   |
| Italy          | 0.895          | Rome           | 0.917       | 97       | 97   | 111  | 122  |
| Netherlands    | 0.941          | Rotterdam      | 0.941       | 40       | 35   | 43   | 41   |

|             |                |               |             | Rankings |      |      |      |
|-------------|----------------|---------------|-------------|----------|------|------|------|
| Country     | Country<br>HDI | City          | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Usa         | 0.921          | San Francisco | 0.931       | 28       | 49   | 54   | 68   |
| Costa Rica  | 0.809          | San José      | 0.826       |          |      | 112  | 127  |
| Yemen       | 0.455          | Sana'a        | 0.521       |          |      |      | 140  |
| Chile       | 0.855          | Santiago      | 0.886       | 79       | 102  | 107  | 119  |
| Brazil      | 0.754          | Sao Paulo     | 0.78        | 95       | 108  | 117  | 130  |
| Usa         | 0.921          | Seattle       | 0.94        | 31       | 41   | 38   | 55   |
| Korea South | 0.925          | Seoul         | 0.952       | 23       | 20   | 18   | 16   |
| China       | 0.768          | Shanghai      | 0.88        | 37       | 42   | 32   | 25   |
| China       | 0.768          | Shenzhen      | 0.799       | 61       | 66   | 60   | 66   |
| Singapore   | 0.939          | Singapore     | 0.939       | 10       | 7    | 7    | 7    |
| Bulgaria    | 0.795          | Sofia         | 0.856       | 87       | 87   | 103  | 111  |
| Sweden      | 0.947          | Stockholm     | 0.972       | 9        | 9    | 11   | 10   |
| Australia   | 0.951          | Sydney        | 0.952       | 22       | 32   | 29   | 18   |
| Taiwan      | 0.916          | Taipei City   | 0.916       | 24       | 23   | 25   | 29   |
| Estonia     | 0.89           | Tallinn       | 0.932       |          | 39   | 24   | 32   |
| Israel      | 0.919          | Tel Aviv      | 0.919       | 49       | 55   | 59   | 91   |
| Netherlands | 0.941          | The Hague     | 0.941       | 36       | 38   | 35   | 43   |
| China       | 0.768          | Tianjin       | 0.844       | 48       | 45   | 50   | 67   |
| Japan       | 0.925          | Tokyo         | 0.951       | 46       | 73   | 67   | 72   |
| Canada      | 0.936          | Toronto       | 0.943       | 29       | 46   | 31   | 48   |
| Tunisia     | 0.731          | Tunis         | 0.775       |          |      |      | 137  |
| Canada      | 0.936          | Vancouver     | 0.944       | 20       | 40   | 28   | 42   |

In Alphabetical Order by City with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|             |                |                 |             | Rankings |      |      |      |
|-------------|----------------|-----------------|-------------|----------|------|------|------|
| Country     | Country<br>HDI | City            | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Austria     | 0.916          | Vienna          | 0.942       | 12       | 18   | 20   | 28   |
| Lithuania   | 0.875          | Vilnius         | 0.913       |          |      |      | 65   |
| Poland      | 0.876          | Warsaw          | 0.926       | 14       | 48   | 41   | 44   |
| Usa         | 0.921          | Washington D.c. | 0.94        | 26       | 13   | 26   | 39   |
| New Zealand | 0.937          | Wellington      | 0.958       |          |      |      | 23   |
| Croatia     | 0.858          | Zagreb          | 0.916       |          |      |      | 106  |
| Spain       | 0.905          | Zaragoza        | 0.912       | 58       | 53   | 51   | 54   |
| China       | 0.768          | Zhuhai          | 0.799       | 53       | 56   | 52   | 60   |
| Switzerland | 0.962          | Zurich          | 0.989       | 1        | 1    | 1    | 1    |

In Alphabetical Order by Country with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|           |                |                |             | Rankings |      |      |      |
|-----------|----------------|----------------|-------------|----------|------|------|------|
| Country   | Country<br>HDI | City           | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Algeria   | 0.745          | Algiers        | 0.767       |          |      |      | 123  |
| Argentina | 0.842          | Buenos Aires   | 0.812       | 88       | 93   | 104  | 124  |
| Australia | 0.951          | Brisbane       | 0.944       | 42       | 27   | 40   | 24   |
| Australia | 0.951          | Canberra       | 0.98        |          |      |      | 3    |
| Australia | 0.951          | Melbourne      | 0.948       | 35       | 33   | 36   | 31   |
| Australia | 0.951          | Sydney         | 0.952       | 22       | 32   | 29   | 18   |
| Austria   | 0.916          | Vienna         | 0.942       | 12       | 18   | 20   | 28   |
| Belgium   | 0.937          | Brussels       | 0.953       | 51       | 16   | 45   | 35   |
| Brazil    | 0.754          | Brasilia       | 0.816       |          |      |      | 128  |
| Brazil    | 0.754          | Rio de Janeiro | 0.783       | 102      | 109  | 118  | 136  |
| Brazil    | 0.754          | Sao Paulo      | 0.78        | 95       | 108  | 117  | 130  |
| Bulgaria  | 0.795          | Sofia          | 0.856       | 87       | 87   | 103  | 111  |
| Canada    | 0.936          | Montreal       | 0.923       | 50       | 52   | 55   | 69   |
| Canada    | 0.936          | Ottawa         | 0.943       |          |      |      | 40   |
| Canada    | 0.936          | Toronto        | 0.943       | 29       | 46   | 31   | 48   |
| Canada    | 0.936          | Vancouver      | 0.944       | 20       | 40   | 28   | 42   |
| Chile     | 0.855          | Santiago       | 0.886       | 79       | 102  | 107  | 119  |
| China     | 0.768          | Beijing        | 0.907       | 30       | 22   | 17   | 12   |
| China     | 0.768          | Chengdu        | 0.74        | 74       | 77   | 84   | 97   |
| China     | 0.768          | Chongqing      | 0.774       | 69       | 65   | 74   | 86   |
| China     | 0.768          | Guangzhou      | 0.799       | 67       | 64   | 66   | 71   |
| China     | 0.768          | Hangzhou       | 0.801       | 66       | 60   | 63   | 70   |

|            |                |            |             | Rankings |      |      |      |
|------------|----------------|------------|-------------|----------|------|------|------|
| Country    | Country<br>HDI | City       | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| China      | 0.768          | Nanjing    | 0.81        | 65       | 59   | 57   | 58   |
| China      | 0.768          | Shanghai   | 0.88        | 37       | 42   | 32   | 25   |
| China      | 0.768          | Shenzhen   | 0.799       | 61       | 66   | 60   | 66   |
| China      | 0.768          | Tianjin    | 0.844       | 48       | 45   | 50   | 67   |
| China      | 0.768          | Zhuhai     | 0.799       | 53       | 56   | 52   | 60   |
| Colombia   | 0.752          | Bogota     | 0.797       | 91       | 104  | 113  | 129  |
| Colombia   | 0.752          | Medellin   | 0.757       | 82       | 88   | 99   | 118  |
| Costa Rica | 0.809          | San José   | 0.826       |          |      | 112  | 127  |
| Croatia    | 0.858          | Zagreb     | 0.916       |          |      |      | 106  |
| Cyprus     | 0.896          | Nicosia    | 0.896       |          |      |      | 117  |
| Czech Rep. | 0.889          | Prague     | 0.96        | 8        | 4    | 10   | 14   |
| Denmark    | 0.948          | Copenhagen | 0.967       | 4        | 3    | 5    | 4    |
| Egypt      | 0.731          | Cairo      | 0.779       | 96       | 100  | 105  | 108  |
| Estonia    | 0.89           | Tallinn    | 0.932       |          | 39   | 24   | 32   |
| Finland    | 0.94           | Helsinki   | 0.96        | 6        | 5    | 9    | 8    |
| France     | 0.903          | Bordeaux   | 0.9         |          |      | 68   | 78   |
| France     | 0.903          | Lille      | 0.88        |          |      | 82   | 84   |
| France     | 0.903          | Lyon       | 0.914       | 54       | 61   | 62   | 64   |
| France     | 0.903          | Marseille  | 0.899       |          | 83   | 91   | 101  |
| France     | 0.903          | Paris      | 0.949       | 39       | 47   | 49   | 46   |
| Germany    | 0.942          | Berlin     | 0.959       | 19       | 21   | 21   | 33   |
| Germany    | 0.942          | Dusseldorf | 0.939       | 17       | 37   | 27   | 38   |

In Alphabetical Order by Country with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|           |                |                |             | Rankings |      |      |      |
|-----------|----------------|----------------|-------------|----------|------|------|------|
| Country   | Country<br>HDI | City           | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Germany   | 0.942          | Hamburg        | 0.972       |          | 6    | 8    | 11   |
| Germany   | 0.942          | Hanover        | 0.93        | 43       | 51   | 53   | 57   |
| Germany   | 0.942          | Kiel           | 0.921       |          |      | 72   | 81   |
| Germany   | 0.942          | Munich         | 0.95        |          | 17   | 15   | 20   |
| Ghana     | 0.632          | Accra          | 0.707       |          |      |      | 138  |
| Greece    | 0.887          | Athens         | 0.909       | 94       | 98   | 108  | 113  |
| Guatemala | 0.627          | Guatemala City | 0.722       |          |      |      | 141  |
| Hong Kong | 0.949          | Hong Kong      | 0.946       | 38       | 34   | 33   | 19   |
| Hungary   | 0.846          | Budapest       | 0.922       | 64       | 63   | 78   | 87   |
| Iceland   | 0.959          | Reykjavik      | 0.959       |          |      |      | 26   |
| India     | 0.633          | Bengaluru      | 0.667       | 85       | 96   | 97   | 110  |
| India     | 0.633          | Delhi          | 0.73        | 78       | 85   | 94   | 105  |
| India     | 0.633          | Hyderabad      | 0.647       | 81       | 91   | 101  | 116  |
| India     | 0.633          | Mumbai         | 0.688       | 83       | 89   | 95   | 109  |
| Indonesia | 0.705          | Jakarta        | 0.759       | 80       | 81   | 92   | 102  |
| Indonesia | 0.705          | Makassar       | 0.699       | 86       | 90   | 102  | 114  |
| Indonesia | 0.705          | Medan          | 0.711       | 89       | 94   | 96   | 112  |
| Ireland   | 0.945          | Dublin         | 0.95        | 21       | 28   | 44   | 63   |
| Israel    | 0.919          | Tel Aviv       | 0.919       | 49       | 55   | 59   | 91   |
| Italy     | 0.895          | Bologna        | 0.924       | 41       | 50   | 48   | 51   |
| Italy     | 0.895          | Milan          | 0.915       | 52       | 70   | 69   | 82   |
| Italy     | 0.895          | Rome           | 0.917       | 97       | 97   | 111  | 122  |

|                  |                |              |             | Rankings |      |      |      |
|------------------|----------------|--------------|-------------|----------|------|------|------|
| Country          | Country<br>HDI | City         | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Japan            | 0.925          | Osaka        | 0.928       | 68       | 84   | 90   | 98   |
| Japan            | 0.925          | Tokyo        | 0.951       | 46       | 73   | 67   | 72   |
| Jordan           | 0.72           | Amman        | 0.737       |          |      |      | 135  |
| Kenya            | 0.575          | Nairobi      | 0.636       | 100      | 107  | 115  | 131  |
| Korea South      | 0.925          | Busan        | 0.936       | 45       | 29   | 47   | 49   |
| Korea South      | 0.925          | Seoul        | 0.952       | 23       | 20   | 18   | 16   |
| Latvia           | 0.863          | Riga         | 0.929       |          |      |      | 83   |
| Lebanon          | 0.706          | Beirut       | 0.677       |          |      |      | 139  |
| Lithuania        | 0.875          | Vilnius      | 0.913       |          |      |      | 65   |
| Luxembourg       | 0.93           | Luxembourg   | 0.93        |          |      |      | 45   |
| Malaysia         | 0.803          | Kuala Lumpur | 0.858       | 59       | 71   | 80   | 89   |
| Mexico           | 0.758          | Mexico City  | 0.815       | 90       | 103  | 110  | 121  |
| Morocco          | 0.683          | Rabat        | 0.702       | 99       | 101  | 109  | 126  |
| Netherlands      | 0.941          | Amsterdam    | 0.962       | 11       | 11   | 13   | 15   |
| Netherlands      | 0.941          | Rotterdam    | 0.941       | 40       | 35   | 43   | 41   |
| Netherlands      | 0.941          | The Hague    | 0.941       | 36       | 38   | 35   | 43   |
| New Zealand      | 0.937          | Auckland     | 0.951       | 5        | 15   | 16   | 22   |
| New Zealand      | 0.937          | Wellington   | 0.958       |          |      |      | 23   |
| Nigeria          | 0.535          | Abuja        | 0.646       | 98       | 106  | 114  | 133  |
| Nigeria          | 0.535          | Lagos        | 0.681       | 101      | 105  | 116  | 132  |
| Northern Ireland | 0.929          | Belfast      | 0.896       |          |      |      | 95   |
| Norway           | 0.961          | Oslo         | 0.98        | 2        | 2    | 2    | 2    |

In Alphabetical Order by Country with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|              |                |            |             | Rankings |      |      |      |
|--------------|----------------|------------|-------------|----------|------|------|------|
| Country      | Country<br>HDI | City       | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Oman         | 0.816          | Muscat     | 0.816       |          |      |      | 96   |
| Pakistan     | 0.544          | Islamabad  | 0.659       |          |      |      | 120  |
| Peru         | 0.762          | Lima       | 0.82        |          |      |      | 134  |
| Philippines  | 0.699          | Manila     | 0.76        | 93       | 95   | 100  | 115  |
| Poland       | 0.876          | Krakow     | 0.888       | 47       | 69   | 76   | 79   |
| Poland       | 0.876          | Warsaw     | 0.926       | 14       | 48   | 41   | 44   |
| Portugal     | 0.866          | Lisbon     | 0.9         | 62       | 75   | 81   | 99   |
| Qatar        | 0.855          | Doha       | 0.855       |          |      |      | 59   |
| Romania      | 0.821          | Bucharest  | 0.926       | 60       | 76   | 87   | 104  |
| Saudi Arabia | 0.875          | Jeddah     | 0.871       |          |      |      | 56   |
| Saudi Arabia | 0.875          | Месса      | 0.871       |          |      |      | 52   |
| Saudi Arabia | 0.875          | Medina     | 0.871       |          |      | 79   | 85   |
| Saudi Arabia | 0.875          | Riyadh     | 0.9         | 55       | 44   | 39   | 30   |
| Singapore    | 0.939          | Singapore  | 0.939       | 10       | 7    | 7    | 7    |
| Slovakia     | 0.848          | Bratislava | 0.944       | 32       | 26   | 42   | 62   |
| Slovenia     | 0.918          | Ljubljana  | 0.953       |          |      |      | 47   |
| South Africa | 0.713          | Cape Town  | 0.751       | 92       | 99   | 106  | 125  |
| Spain        | 0.905          | Barcelona  | 0.916       | 56       | 58   | 70   | 75   |
| Spain        | 0.905          | Bilbao     | 0.932       | 18       | 25   | 23   | 27   |
| Spain        | 0.905          | Madrid     | 0.94        | 25       | 30   | 37   | 37   |
| Spain        | 0.905          | Zaragoza   | 0.912       | 58       | 53   | 51   | 54   |
| Sweden       | 0.947          | Gothenburg | 0.944       | 33       | 43   | 46   | 36   |

|                      |                |             |             | Rankings |      |      |      |
|----------------------|----------------|-------------|-------------|----------|------|------|------|
| Country              | Country<br>HDI | City        | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| Sweden               | 0.947          | Stockholm   | 0.972       | 9        | 9    | 11   | 10   |
| Switzerland          | 0.962          | Geneva      | 0.966       | 7        | 8    | 6    | 9    |
| Switzerland          | 0.962          | Lausanne    | 0.966       |          |      | 4    | 5    |
| Switzerland          | 0.962          | Zurich      | 0.989       | 1        | 1    | 1    | 1    |
| Taiwan               | 0.916          | Taipei City | 0.916       | 24       | 23   | 25   | 29   |
| Thailand             | 0.8            | Bangkok     | 0.839       | 75       | 78   | 86   | 88   |
| Tunisia              | 0.731          | Tunis       | 0.775       |          |      |      | 137  |
| Turkey               | 0.838          | Ankara      | 0.854       | 73       | 74   | 75   | 90   |
| Turkey               | 0.838          | Istanbul    | 0.867       |          |      | 88   | 107  |
| United Arab Emirates | 0.911          | Abu Dhabi   | 0.911       | 16       | 14   | 12   | 13   |
| United Arab Emirates | 0.911          | Dubai       | 0.911       | 13       | 19   | 14   | 17   |
| United Kingdom       | 0.929          | Birmingham  | 0.913       | 63       | 68   | 73   | 74   |
| United Kingdom       | 0.929          | Glasgow     | 0.921       |          |      | 65   | 80   |
| United Kingdom       | 0.929          | Leeds       | 0.908       |          |      | 64   | 76   |
| United Kingdom       | 0.929          | London      | 0.973       | 3        | 10   | 3    | 6    |
| United Kingdom       | 0.929          | Manchester  | 0.915       |          | 57   | 58   | 73   |
| United Kingdom       | 0.929          | Newcastle   | 0.901       |          | 62   | 61   | 77   |
| USA                  | 0.921          | Boston      | 0.949       | 15       | 24   | 22   | 34   |
| USA                  | 0.921          | Chicago     | 0.929       | 57       | 54   | 56   | 61   |
| USA                  | 0.921          | Denver      | 0.942       | 27       | 31   | 34   | 53   |
| USA                  | 0.921          | Los Angeles | 0.931       | 44       | 36   | 30   | 50   |
| USA                  | 0.921          | New York    | 0.938       | 34       | 12   | 19   | 21   |

In Alphabetical Order by Country with HDI Context and 2019-2023 Rankings (2023 Methodology Applied)

|         |                |                  |             | Rankings |      |      |      |
|---------|----------------|------------------|-------------|----------|------|------|------|
| Country | Country<br>HDI | City             | City<br>HDI | 2019     | 2020 | 2021 | 2023 |
| USA     | 0.921          | Philadelphia     | 0.923       | 71       | 79   | 85   | 92   |
| USA     | 0.921          | Phoenix          | 0.908       |          | 72   | 77   | 93   |
| USA     | 0.921          | San Francisco    | 0.931       | 28       | 49   | 54   | 68   |
| USA     | 0.921          | Seattle          | 0.94        | 31       | 41   | 38   | 55   |
| USA     | 0.921          | Washington D.C.  | 0.94        | 26       | 13   | 26   | 39   |
| Vietnam | 0.703          | Hanoi            | 0.744       | 77       | 82   | 89   | 100  |
| Vietnam | 0.703          | Ho Chi Minh City | 0.714       | 76       | 86   | 93   | 103  |
| Wales   | 0.929          | Cardiff          | 0.898       |          |      |      | 94   |
| Yemen   | 0.455          | Sana'a           | 0.521       |          |      |      | 140  |

A User's Guide

#### A User's Guide

SMART CITY RANKING

> 13 Out of 141



12 out of 118 in 2021

SMART CITY RATING

**BB**A in 2021

FACTOR RATINGS

BB

**BB**TECHNOLOGIES

GROUP

3

All ratings range from AAA to D

#### Smart City Ranking

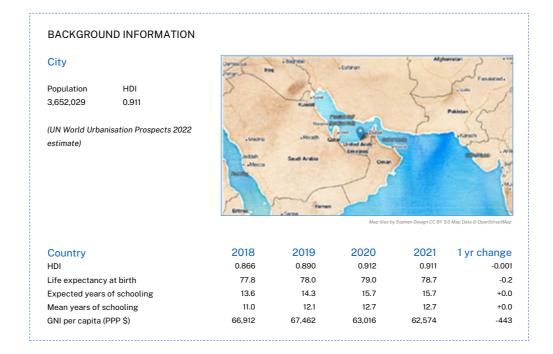
**Smart City Ranking:** The Ranking position of the city amongst the 141 cities measured, based upon the Rating and its components.

**Group:** Each city is assigned to one of four groups, based upon its HDI values.

**Smart City Rating and Factor Ratings:** The Ratings for each city are calculated from the city's performance relative to the other cities within the group.

The Methodology section provides the exact procedure for these calculations.

The 2021 Ranking and Rating are also shown for the 118 cities included in in the last edition's index (2021).



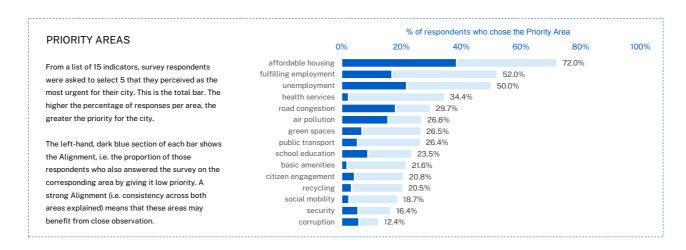
#### **Background Information**

This section presents the Human Development Index (HDI) at the city level taken from the Global Data Lab, and the population of the city as defined through the United Nations World Urbanization Prospects for the majority of cities, or Eurostat for some of European cities.

It also presents the United Nations HDI (country-level - for the parent economy of a given city) and its four components, as well as the city's position on the map. Please note: for Taipei City only, the data is calculated using the same methodology and comparable data.

#### **Priority Areas**

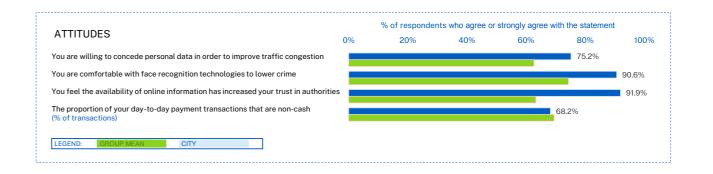
Summarizes the areas that the respondents perceive as the priority area for their city. From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. The total bar indicates the percentage of the respondents that included a given area as one of their five choices. The higher the percentage of responses per area, the greater the priority for the city. The left-hand section of each bar shows the Alignment - the proportion of those respondents who also answered the corresponding survey questions low. A strong Alignment implies that these areas also demand priority attention.



#### A User's Guide

#### **Attitudes**

Shows and compares the responses to three key privacy aspects (willingness to concede personal data, comfort vis-à-vis face recognition, and whether online information has increased trust in authorities) and the percentage of day-to-day transactions that are non-cash. The city is represented by the blue bar, while the group average is shown by the light red bar.



# Structures and Technologies

Key survey data collected on Structures (left side) and Technologies (right side), under five key areas: health and safety, mobility, activities, opportunities, and governance.

Each indicator presents the Score for the city and a comparison with its Group (1-4). Showing the Group's Minimum, Mean, and Maximum Scores (light red bar) alongside with the city (blue circle) allows a clear comparison of the city's performance in this indicator. The Methodology section provides the exact calculation of the Score.

This table can be read in two ways: down to examine all Structures or Technologies indicators, or across to examine a key area in both Structures and Technologies.



Methodology

#### Methodology

| 1 | The IMD Smart City Index 2023 assesses the perceptions of residents on issues related to structures and technology applications available to them in their city.  |
|---|---|
| 2 | This edition of the SCI ranks 141 cities worldwide by capturing the perceptions of 120 residents in each city. The final score for each city is computed by using the perceptions of the last three years of the survey, with the weight of 3:2:1 for 2023:2021:2020. |
| 3 | There are two pillars for which perceptions from residents are solicited: The Structures pillar referring to the existing infrastructure of the cities, and the Technology pillar describing the technological provisions and services available to the inhabitants.  |
| 4 | Each pillar is evaluated over five key areas: health and safety, mobility, activities, opportunities, and governance.   |

The cities are distributed into four groups based on the Global Data Lab's Human Development Index (HDI) score of the city they are part of.

Within each HDI group, cities are assigned a 'rating scale' (AAA to D) based on the perceptions-score of a given city compared to the scores of all other cities within the same group.

For group 1 (highest HDI quartile), scale

AAA-AA-A-BBB-BB

For group 2 (second HDI quartile), scale

A-BBB-BB-B-CCC

For group 3 (third HDI quartile), scale

BB-B-CCC-CC-C

For group 4 (lowest HDI quartile), scale

CCC-CC-C

7

#### Rankings are then presented in two formats:

- an overall ranking (1 to 141)
- · a rating for each pillar and overall

City Profiles

#### Abu Dhabi

SMART CITY RANKING

13

Out of 141



12 out of 118 in 2021

SMART CITY RATING

BB

A in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 3,652,029 0.911

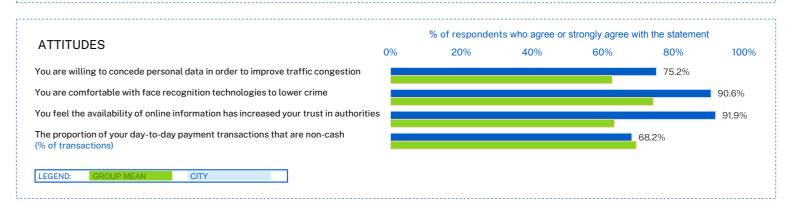
(UN World Urbanisation Prospects 2022 estimate)



|     |          | 01     | n -    | 00 | 01/00  |     | n .  | _ | 0 01 11     |
|-----|----------|--------|--------|----|--------|-----|------|---|-------------|
| мар | tiles by | Stamen | Design | CC | BY 3.0 | мар | Data | 0 | OpenStreetM |

| Country                     | 2018<br>0.866 | 2019<br>0.890 | 2020<br>0.912 | 2021   | 1 yr change<br>-0.001 |
|-----------------------------|---------------|---------------|---------------|--------|-----------------------|
| Life expectancy at birth    | 77.8          | 78.0          | 79.0          | 78.7   | -0.2                  |
| Expected years of schooling | 13.6          | 14.3          | 15.7          | 15.7   | +0.0                  |
| Mean years of schooling     | 11.0          | 12.1          | 12.7          | 12.7   | +0.0                  |
| GNI per capita (PPP \$)     | 66,912        | 67,462        | 63,016        | 62,574 | -443                  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 20% 40% 100% affordable housing 72.0% From a list of 15 indicators, survey respondents fulfilling employment 52.0% were asked to select 5 that they perceived as the unemployment 50.0% most urgent for their city. This is the total bar. The 34.4% health services higher the percentage of responses per area, the road congestion 29.7% greater the priority for the city. air pollution 26.8% green spaces 26.5% 26.4% The left-hand, dark blue section of each bar shows public transport 23.5% school education the Alignment, i.e. the proportion of those basic amenities 21.6% respondents who also answered the survey on the 20.8% citizen engagement corresponding area by giving it low priority. A 20.5% recycling strong Alignment (i.e. consistency across both 18.7% social mobility areas explained) means that these areas may security 16.4% benefit from close observation. corruption 12.4%







133

Out of 141



114 out of 118 in 2021

SMART CITY RATING

D

D in 2021

FACTOR RATINGS

C

STRUCTURES

D

**TECHNOLOGIES** 

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

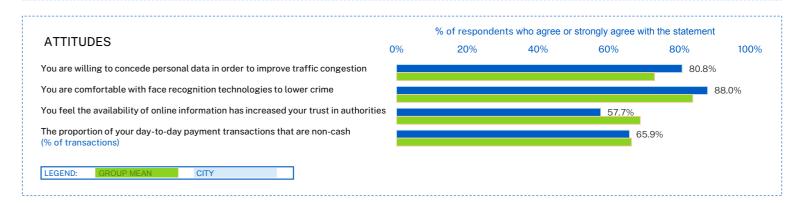
Population HDI 153,983 0.646

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.534 | 0.539 | 0.535 | 0.535 | +0.000      |
| Life expectancy at birth    | 54.3  | 54.7  | 52.9  | 52.7  | -0.2        |
| Expected years of schooling | 9.7   | 10.0  | 10.1  | 10.1  | +0.0        |
| Mean years of schooling     | 6.5   | 6.7   | 7.2   | 7.2   | +0.0        |
| GNI per capita (PPP \$)     | 5,086 | 4,910 | 4,740 | 4,790 | +51         |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 71.7% From a list of 15 indicators, survey respondents 70.3% security were asked to select 5 that they perceived as the 65.5% unemployment most urgent for their city. This is the total bar. The 58.7% corruption higher the percentage of responses per area, the health services 53.2% greater the priority for the city. basic amenities 36.2% fulfilling employment 34.1% The left-hand, dark blue section of each bar shows school education 20.2% road congestion the Alignment, i.e. the proportion of those citizen engagement 16.9% respondents who also answered the survey on the recycling 13.8% corresponding area by giving it low priority. A public transport 12.0% strong Alignment (i.e. consistency across both social mobility 8.7% areas explained) means that these areas may air pollution 7.5% benefit from close observation. green spaces 3.7%







138

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

D

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 2,605,402 0.707

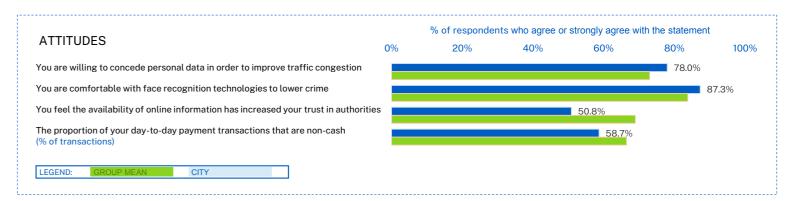
(UN World Urbanisation Prospects 2022 estimate)



|  | Map tiles by | Stamen | Design | CC | ВΥ | 3.0 | Мар | Data | 0 | OpenStreet |
|--|--------------|--------|--------|----|----|-----|-----|------|---|------------|
|--|--------------|--------|--------|----|----|-----|-----|------|---|------------|

| Country<br>HDI              | 2018<br>0.620 | 2019<br>0.631 | 2020<br>0.632 | 2021<br>0.632 | 1 yr change<br>+0.000 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 64.1          | 64.7          | 64.1          | 63.8          | -0.3                  |
| Expected years of schooling | 11.5          | 11.9          | 12.1          | 12.1          | +0.0                  |
| Mean years of schooling     | 8.2           | 8.3           | 8.3           | 8.3           | +0.0                  |
| GNI per capita (PPP \$)     | 5,072         | 5,307         | 5,601         | 5,745         | +143                  |

### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% unemployment From a list of 15 indicators, survey respondents affordable housing 62.7% were asked to select 5 that they perceived as the 56.8% corruption most urgent for their city. This is the total bar. The 54.2% basic amenities higher the percentage of responses per area, the 49.2% health services greater the priority for the city. 32.2% security fulfilling employment 30.5% 28.0% The left-hand, dark blue section of each bar shows school education road congestion the Alignment, i.e. the proportion of those air pollution 23.7% respondents who also answered the survey on the recycling 18.6% corresponding area by giving it low priority. A public transport 17.8% strong Alignment (i.e. consistency across both citizen engagement 8.5% areas explained) means that these areas may green spaces 6.8% benefit from close observation. social mobility 5.9%





# Algiers

SMART CITY RANKING

123

Out of 141

not out of 118 in 2021

SMART CITY RATING

C

not in 2021

FACTOR RATINGS

C

STRUCTURES

C

**TECHNOLOGIES** 

**GROUP** 

4

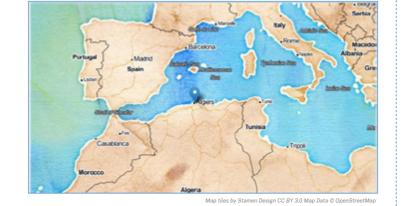
All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

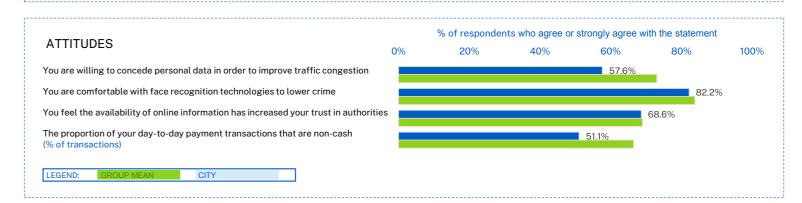
Population HDI 2,853,959 0.767

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.745  | 0.748  | 0.736  | 0.745  | +0.009      |
| Life expectancy at birth    | 76.1   | 76.5   | 74.5   | 76.4   | +1.9        |
| Expected years of schooling | 14.6   | 14.6   | 14.6   | 14.6   | +0.0        |
| Mean years of schooling     | 8.0    | 8.1    | 8.1    | 8.1    | +0.0        |
| GNI per capita (PPP \$)     | 11,344 | 11,242 | 10,530 | 10,800 | +270        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% road congestion From a list of 15 indicators, survey respondents health services 49.2% were asked to select 5 that they perceived as the affordable housing 46.6% most urgent for their city. This is the total bar. The 45.8% unemployment higher the percentage of responses per area, the 41.5% basic amenities greater the priority for the city. 33.1% corruption green spaces 33.1% 31.4% The left-hand, dark blue section of each bar shows security 30.5% fulfilling employment the Alignment, i.e. the proportion of those air pollution 29.7% respondents who also answered the survey on the recycling 28.0% corresponding area by giving it low priority. A 27.1% public transport strong Alignment (i.e. consistency across both school education 20.3%



citizen engagement 12.7%

social mobility 7.6%



areas explained) means that these areas may

# Amman

SMART CITY RANKING

135

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

TECHNOLOGIES

**GROUP** 

4

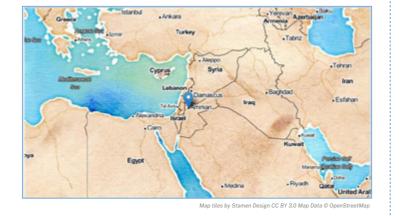
All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

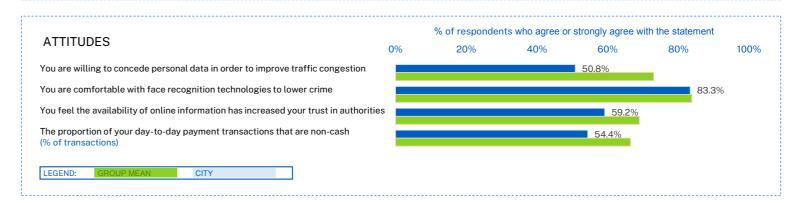
Population HDI 4,007,526 0.737

(UN Data)



| Country                     | 2018  | 2019   | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|--------|-------|-------|-------------|
| HDI                         | 0.723 | 0.727  | 0.723 | 0.720 | -0.003      |
| Life expectancy at birth    | 75.8  | 76.0   | 75.2  | 74.3  | -0.9        |
| Expected years of schooling | 10.4  | 10.6   | 10.7  | 10.7  | +0.0        |
| Mean years of schooling     | 10.4  | 10.4   | 10.5  | 10.5  | +0.0        |
| GNI per capita (PPP \$)     | 9,967 | 10,073 | 9,789 | 9,924 | +135        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% road congestion 64.2% From a list of 15 indicators, survey respondents 62.5% unemployment were asked to select 5 that they perceived as the affordable housing 60.8% most urgent for their city. This is the total bar. The 58.3% corruption higher the percentage of responses per area, the fulfilling employment 34.2% greater the priority for the city. 33.3% green spaces public transport 33.3% health services 31.7% The left-hand, dark blue section of each bar shows basic amenities 31.7% the Alignment, i.e. the proportion of those air pollution 19.2% respondents who also answered the survey on the 18.3% school education corresponding area by giving it low priority. A security strong Alignment (i.e. consistency across both 13 3% recycling areas explained) means that these areas may citizen engagement 5.0% benefit from close observation. social mobility 3.3%





# Amsterdam

SMART CITY RANKING

15

Out of 141



13 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

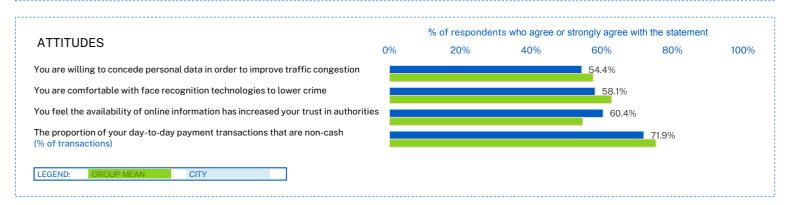
Population HDI 2,888,486 0.962

(Eurostat)



| Country  | 2018<br>0.934 | 2019         | 2020<br>0.939 | 2021<br>0.941 | 1 yr change<br>+0.002 |
|--|---------------|--------------|---------------|---------------|-----------------------|
| Life expectancy at birth                             | 82.1          | 82.3         | 81.6          | 81.7          | +0.0                  |
| Expected years of schooling  Mean years of schooling | 18.0<br>12.2  | 18.5<br>12.4 | 18.0<br>12.6  | 18.0<br>12.6  | +0.0<br>+0.0          |
| GNI per capita (PPP \$)                              | 50,013        | 57,707       | 53,504        | 55,979        | +2,476                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 68.7% From a list of 15 indicators, survey respondents security 64.6% were asked to select 5 that they perceived as the health services 40.0% most urgent for their city. This is the total bar. The air pollution 35.7% higher the percentage of responses per area, the 28.9% public transport greater the priority for the city. road congestion 28.5% basic amenities 28.5% 28.1% The left-hand, dark blue section of each bar shows green spaces 27.2% unemployment the Alignment, i.e. the proportion of those school education 26.5% respondents who also answered the survey on the citizen engagement 24.7% corresponding area by giving it low priority. A recycling 19.0% strong Alignment (i.e. consistency across both fulfilling employment 15.9% areas explained) means that these areas may social mobility 14.6% benefit from close observation. corruption 9.4%







90

Out of 141



75 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

B

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

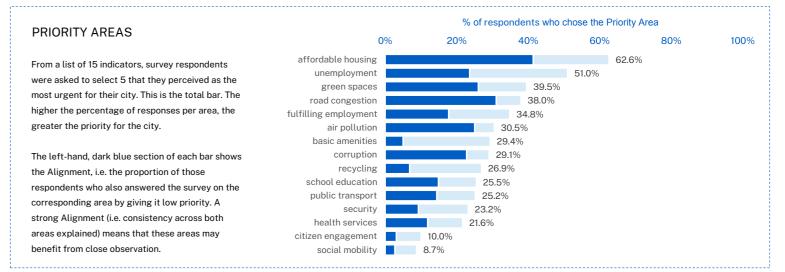
### City

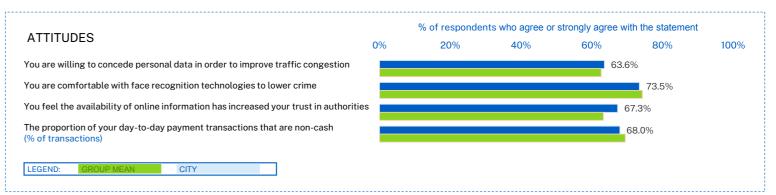
Population HDI 5,663,322 0.854

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.807  | 0.820  | 0.833  | 0.838  | +0.005      |
| Life expectancy at birth    | 77.4   | 77.7   | 75.9   | 76.0   | +0.2        |
| Expected years of schooling | 16.4   | 16.6   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 7.7    | 8.1    | 8.6    | 8.6    | +0.0        |
| GNI per capita (PPP \$)     | 24,905 | 27,701 | 28,317 | 31,033 | +2,715      |









113

Out of 141



108 out of 118 in 2021

SMART CITY RATING

C

C in 2021

FACTOR RATINGS

C

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

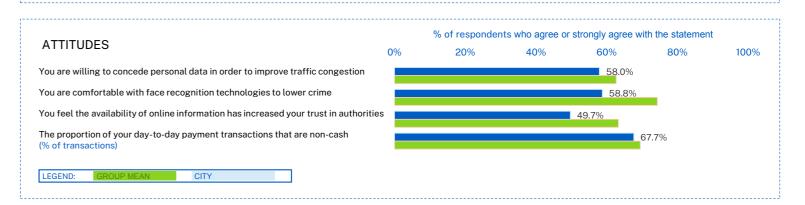
Population HDI 3,736,737 0.909

(Eurostat)



| Country<br>HDI              | 2018<br>0.872 | 2019<br>0.888 | 2020<br>0.886 | 2021<br>0.887 | 1 yr change<br>+0.001 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 82.1          | 82.2          | 80.9          | 80.1          | -0.8                  |
| Expected years of schooling | 17.3          | 17.9          | 18.0          | 18.0          | +0.0                  |
| Mean years of schooling     | 10.5          | 10.6          | 11.4          | 11.4          | +0.0                  |
| GNI per capita (PPP \$)     | 24,909        | 30,155        | 26,681        | 29,002        | +2,322                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% 55.9% security From a list of 15 indicators, survey respondents 50.8% were asked to select 5 that they perceived as the road congestion 48.2% most urgent for their city. This is the total bar. The health services 47.0% higher the percentage of responses per area, the affordable housing 39.4% greater the priority for the city. 35.2% green spaces corruption 34.9% fulfilling employment The left-hand, dark blue section of each bar shows 30.9% air pollution the Alignment, i.e. the proportion of those basic amenities 24 9% respondents who also answered the survey on the 24.0% public transport corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both school education 16.4% areas explained) means that these areas may citizen engagement 9.0% benefit from close observation. social mobility 8.0%





# Auckland

SMART CITY RANKING

22

Out of 141



16 out of 118 in 2021

SMART CITY RATING



AA in 2021

FACTOR RATINGS



STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

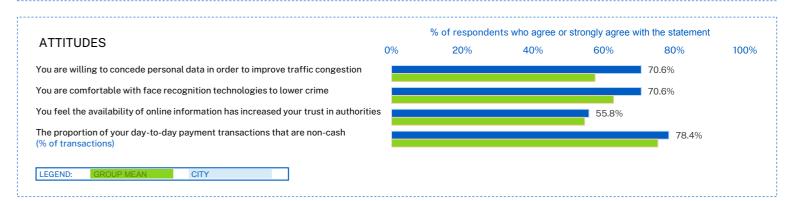
Population HDI 1,346,091 0.951

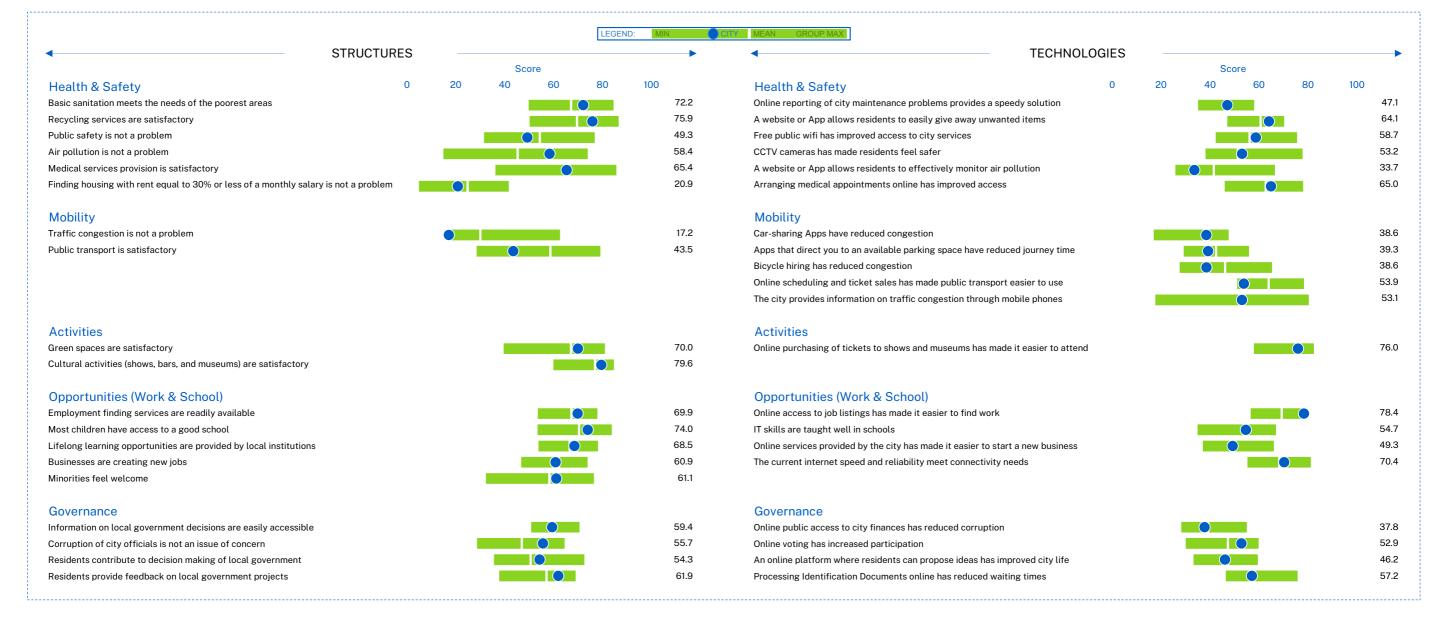
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.936  | 0.937  | 0.936  | 0.937  | +0.001      |
| Life expectancy at birth    | 82.4   | 82.6   | 82.7   | 82.5   | -0.3        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 13.1   | 7.9    | 8.7    | 8.7    | +0.0        |
| GNI per capita (PPP \$)     | 16,129 | 17,781 | 16,804 | 17,030 | +226        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 84.8% From a list of 15 indicators, survey respondents road congestion 65.8% were asked to select 5 that they perceived as the health services 42.5% most urgent for their city. This is the total bar. The 40.6% public transport higher the percentage of responses per area, the security 40.2% greater the priority for the city. unemployment 36.8% fulfilling employment 24.4% 23.5% basic amenities The left-hand, dark blue section of each bar shows 21.5% school education the Alignment, i.e. the proportion of those recycling 19.5% respondents who also answered the survey on the 17.7% air pollution corresponding area by giving it low priority. A corruption 13.0% strong Alignment (i.e. consistency across both green spaces 10.7% areas explained) means that these areas may citizen engagement 10.2% benefit from close observation. social mobility 9.9%





# Bangkok

SMART CITY RANKING

88

Out of 141



86 out of 118 in 2021

SMART CITY RATING

B

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 10 900 0.839

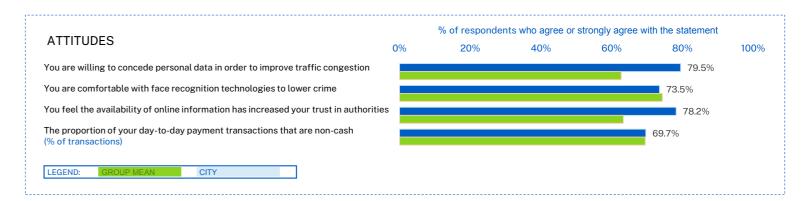
(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.765  | 0.777  | 0.802  | 0.800  | -0.002      |
| Life expectancy at birth    | 76.9   | 77.2   | 79.3   | 78.7   | -0.5        |
| Expected years of schooling | 14.7   | 15.0   | 15.9   | 15.9   | +0.0        |
| Mean years of schooling     | 7.7    | 7.9    | 8.7    | 8.7    | +0.0        |
| GNI per capita (PPP \$)     | 16,129 | 17,781 | 16,804 | 17,030 | +226        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% air pollution From a list of 15 indicators, survey respondents 54.1% were asked to select 5 that they perceived as the 52.3% security most urgent for their city. This is the total bar. The road congestion higher the percentage of responses per area, the basic amenities 38.3% greater the priority for the city. health services 30.6% public transport 30.4% 28.6% The left-hand, dark blue section of each bar shows unemployment fulfilling employment 25.5% the Alignment, i.e. the proportion of those green spaces 23.2% respondents who also answered the survey on the affordable housing 21.3% corresponding area by giving it low priority. A social mobility 20.5% strong Alignment (i.e. consistency across both school education 12.8% areas explained) means that these areas may recycling 11.4%

10.4%



citizen engagement



# ( Barcelona

SMART CITY RANKING

**75** 

Out of 141



70 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 7,671,252 0.916

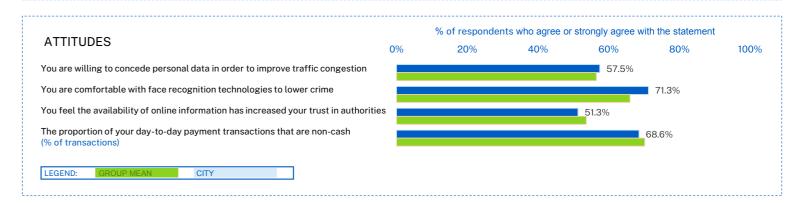
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.893  | 0.904  | 0.899  | 0.905  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.6   | 82.3   | 83.0   | +0.7        |
| Expected years of schooling | 17.9   | 17.6   | 17.9   | 17.9   | +0.0        |
| Mean years of schooling     | 9.8    | 10.3   | 10.6   | 10.6   | +0.0        |
| GNI per capita (PPP \$)     | 35,041 | 40,975 | 36,516 | 38,354 | +1,838      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents security 58.0% were asked to select 5 that they perceived as the fulfilling employment 55.8% most urgent for their city. This is the total bar. The health services 38.8% higher the percentage of responses per area, the 37.8% unemployment greater the priority for the city. air pollution 33.4% road congestion 27.0% 25.2% The left-hand, dark blue section of each bar shows corruption school education 21.0% the Alignment, i.e. the proportion of those green spaces 19.3% respondents who also answered the survey on the 19.3% public transport corresponding area by giving it low priority. A recycling 17.5% strong Alignment (i.e. consistency across both basic amenities 16.2% areas explained) means that these areas may citizen engagement 14.0%

12.5%



social mobility



# Beijing

SMART CITY RANKING

12

Out of 141



17 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Population HDI 21 333 0.907

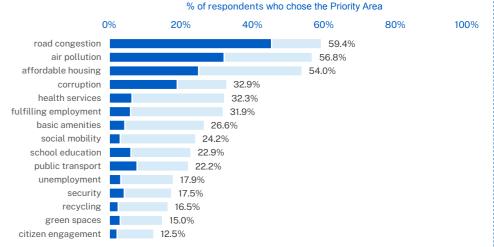
(UN World Urbanisation Prospects 2022 estimate)

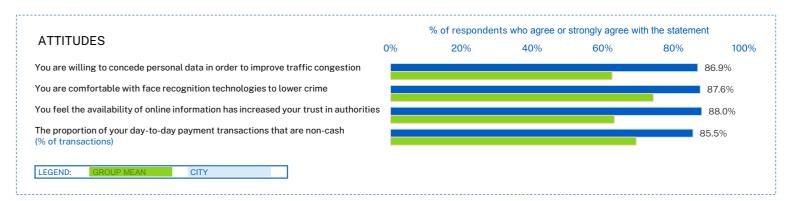


| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |

# PRIORITY AREAS O% From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city. O% From a list of 15 indicators, survey respondents air pollution affordable housing corruption health services greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.







# Beirut

SMART CITY RANKING

139

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

D

**TECHNOLOGIES** 

**GROUP** 

4

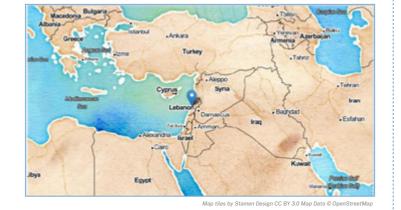
All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 2,433,155 0.677

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021  | 1 yr change |
|-----------------------------|--------|--------|--------|-------|-------------|
| HDI                         | 0.750  | 0.745  | 0.726  | 0.706 | -0.020      |
| Life expectancy at birth    | 79.7   | 79.2   | 77.8   | 75.1  | -2.8        |
| Expected years of schooling | 11.3   | 11.3   | 11.3   | 11.3  | +0.0        |
| Mean years of schooling     | 8.7    | 8.7    | 8.7    | 8.7   | +0.0        |
| GNI per capita (PPP \$)     | 15,586 | 14,378 | 11,201 | 9,526 | -1,676      |

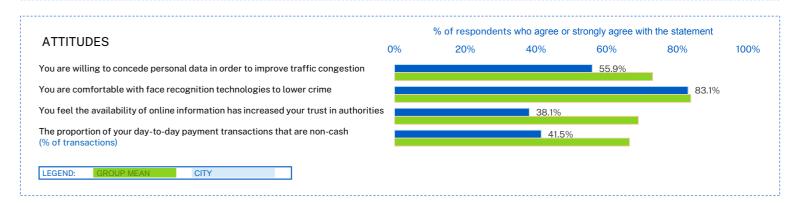
### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% unemployment 59.3% From a list of 15 indicators, survey respondents basic amenities 56.8% were asked to select 5 that they perceived as the 55.1% corruption most urgent for their city. This is the total bar. The 51.7% security higher the percentage of responses per area, the affordable housing 46.6% greater the priority for the city. health services 44.9% road congestion public transport The left-hand, dark blue section of each bar shows 31.4% school education 28.0% the Alignment, i.e. the proportion of those air pollution 25.4% respondents who also answered the survey on the 23.7% fulfilling employment corresponding area by giving it low priority. A green spaces

12 7%

recycling

citizen engagement 5.1%

social mobility | 1.7%





strong Alignment (i.e. consistency across both

areas explained) means that these areas may

# Belfast

SMART CITY RANKING

95

Out of 141

not out of 118 in 2021

SMART CITY RATING

CC

not in 2021

FACTOR RATINGS

CCC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

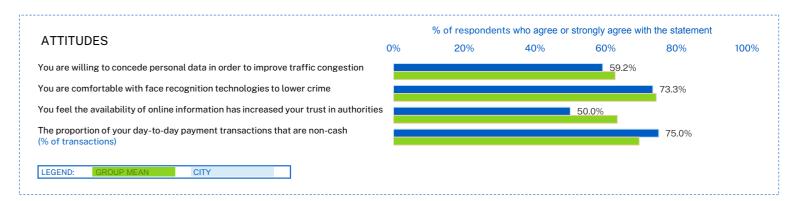
Population HDI 341,506 0.896

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.929  | 0.935  | 0.924  | 0.929  | +0.005      |
| Life expectancy at birth    | 81.1   | 81.7   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.3   | 17.3   | 17.3   | 17.3   | +0.0        |
| Mean years of schooling     | 13.2   | 13.3   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 46,226 | 47,252 | 42,375 | 45,225 | +2,850      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 77.5% From a list of 15 indicators, survey respondents 76.7% health services were asked to select 5 that they perceived as the 45.0% unemployment most urgent for their city. This is the total bar. The public transport 35.0% higher the percentage of responses per area, the 31.7% security greater the priority for the city. road congestion 29.2% fulfilling employment 25.8% 24.2% The left-hand, dark blue section of each bar shows school education 23.3% corruption the Alignment, i.e. the proportion of those recycling 21.7% respondents who also answered the survey on the social mobility 19.2% corresponding area by giving it low priority. A green spaces 16.7% strong Alignment (i.e. consistency across both air pollution 15.0% areas explained) means that these areas may basic amenities



citizen engagement 10.0%



# Bengaluru

**SMART** CITY **RANKING** 

110

Out of 141



97 out of 118 in 2021

**SMART CITY RATING** 

CC in 2021

**FACTOR RATINGS** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

HDI Population 13,193,035 0.667

(UN World Urbanisation Prospects 2022 estimate)



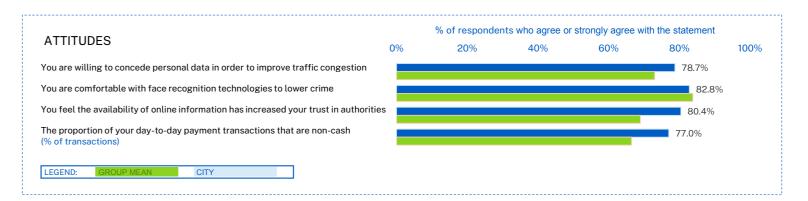
| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.647 | 0.645 | 0.642 | 0.633 | -0.009      |
| Life expectancy at birth    | 69.4  | 69.7  | 70.2  | 67.2  | -2.9        |
| Expected years of schooling | 12.3  | 12.2  | 11.9  | 11.9  | +0.0        |
| Mean years of schooling     | 6.5   | 6.5   | 6.7   | 6.7   | +0.0        |
| GNI per capita (PPP \$)     | 6,829 | 6,681 | 6,107 | 6,590 | +482        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% 61.3% air pollution From a list of 15 indicators, survey respondents road congestion 51.6% were asked to select 5 that they perceived as the basic amenities 42.2% most urgent for their city. This is the total bar. The 39.6% corruption higher the percentage of responses per area, the affordable housing 38.7% greater the priority for the city. fulfilling employment 33.0% recycling 30.2% 29.8% The left-hand, dark blue section of each bar shows green spaces health services 29.4% the Alignment, i.e. the proportion of those security 29.1% respondents who also answered the survey on the 28.7% unemployment corresponding area by giving it low priority. A public transport 26.6% strong Alignment (i.e. consistency across both social mobility 15.8% areas explained) means that these areas may

12.9%

citizen engagement

school education







33

Out of 141



21 out of 118 in 2021

SMART CITY RATING

**BBB** 

BBB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 3,664,088 0.959

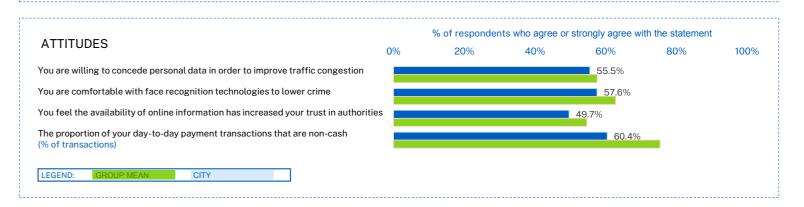
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.939  | 0.947  | 0.944  | 0.942  | -0.002      |
| Life expectancy at birth    | 81.2   | 81.3   | 81.2   | 80.6   | -0.5        |
| Expected years of schooling | 17.1   | 17.0   | 17.0   | 17.0   | +0.0        |
| Mean years of schooling     | 14.1   | 14.2   | 14.1   | 14.1   | +0.0        |
| GNI per capita (PPP \$)     | 46.946 | 55.314 | 53.078 | 54.534 | +1.457      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 72.7% From a list of 15 indicators, survey respondents security 56.2% were asked to select 5 that they perceived as the road congestion 42.7% most urgent for their city. This is the total bar. The 38.3% unemployment higher the percentage of responses per area, the air pollution 34.8% greater the priority for the city. school education 32.6% basic amenities 25.0% health services 24.1% The left-hand, dark blue section of each bar shows 22.8% public transport the Alignment, i.e. the proportion of those recycling 19.6% respondents who also answered the survey on the 19.1% green spaces corresponding area by giving it low priority. A 17.7% citizen engagement strong Alignment (i.e. consistency across both 13.8% corruption areas explained) means that these areas may social mobility 12.4%

fulfilling employment







Out of 141



23 out of 118 in 2021

**SMART CITY RATING** 

**BBB** 

BBB in 2021

**FACTOR RATINGS** 

**BBB** 

**STRUCTURES** 

**BBB** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

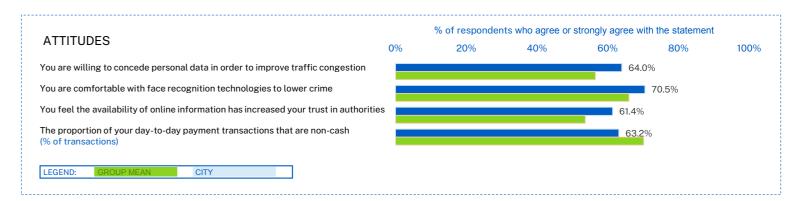
Population HDI 0.932 2,185,908

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.893  | 0.904  | 0.899  | 0.905  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.6   | 82.3   | 83.0   | +0.7        |
| Expected years of schooling | 17.9   | 17.6   | 17.9   | 17.9   | +0.0        |
| Mean years of schooling     | 9.8    | 10.3   | 10.6   | 10.6   | +0.0        |
| GNI per capita (PPP \$)     | 35,041 | 40,975 | 36,516 | 38,354 | +1,838      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 71.2% From a list of 15 indicators, survey respondents fulfilling employment 71.1% were asked to select 5 that they perceived as the unemployment most urgent for their city. This is the total bar. The 41.9% security higher the percentage of responses per area, the health services 35.3% greater the priority for the city. citizen engagement 26.7% corruption 23.1% The left-hand, dark blue section of each bar shows road congestion 19.9% air pollution the Alignment, i.e. the proportion of those school education 19.1% respondents who also answered the survey on the 18.3% social mobility corresponding area by giving it low priority. A 17.5% green spaces strong Alignment (i.e. consistency across both 17.5% public transport areas explained) means that these areas may recycling 16.0% benefit from close observation. basic amenities 11.2%





# Birmingham

SMART CITY RANKING

74

Out of 141



73 out of 118 in 2021

SMART CITY RATING

BB

B in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 1,148,862 0.913

(Eurostat)

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI



13.4

42,375

2019

0.932

81.3

17.5

13.2

46.071

2018

0.920

81.2

17.4

13.0

39,507

| 2020  | 2021  | 1 yr change |  |
|-------|-------|-------------|--|
| 0.924 | 0.929 | +0.005      |  |
| 80.4  | 80.7  | +0.3        |  |
| 17.3  | 17.3  | +0.0        |  |

13.4

45,225

+0.0

+2.850

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents security 45.9% were asked to select 5 that they perceived as the health services 42.2% most urgent for their city. This is the total bar. The 41.8% road congestion higher the percentage of responses per area, the unemplovment 41.0% greater the priority for the city. air pollution 34.9% fulfilling employment 33.2% The left-hand, dark blue section of each bar shows green spaces 26.1% 24.5% recycling the Alignment, i.e. the proportion of those school education 22.6% respondents who also answered the survey on the 21.2% public transport corresponding area by giving it low priority. A basic amenities 18.0% strong Alignment (i.e. consistency across both social mobility 15.7% areas explained) means that these areas may corruption benefit from close observation. citizen engagement 7.3%

| ATTITUDES  |      |     | _   |       | vith the statemen |      |
|--|------|-----|-----|-------|-------------------|------|
|  | 0%   | 20% | 40% | 60%   | 80%               | 100% |
| You are willing to concede personal data in order to improve traffic congestion              |      |     |     | 56.1% |                   |      |
| You are comfortable with face recognition technologies to lower crime                        |      |     |     |       | 68.3%             |      |
| You feel the availability of online information has increased your trust in authorit         | ties |     |     | 55.3% |                   |      |
| The proportion of your day-to-day payment transactions that are non-cash (% of transactions) |      |     |     |       | 75.6%             |      |



# Bogota

**SMART** CITY **RANKING** 

**129** 

Out of 141



113 out of 118 in 2021

**SMART CITY RATING** 

D in 2021

**FACTOR RATINGS** 



**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

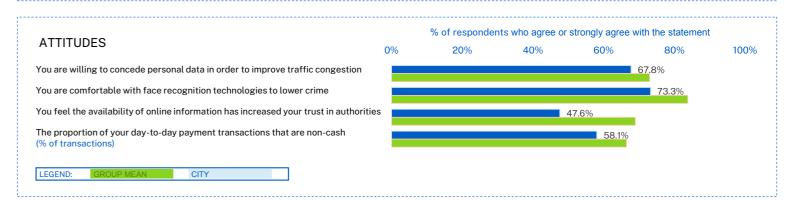
HDI Population 7,181,469 0.797

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.761  | 0.767  | 0.756  | 0.752  | -0.004      |
| Life expectancy at birth    | 77.1   | 77.3   | 74.8   | 72.8   | -1.9        |
| Expected years of schooling | 14.6   | 14.4   | 14.4   | 14.4   | +0.0        |
| Mean years of schooling     | 8.3    | 8.5    | 8.9    | 8.9    | +0.0        |
| GNI per capita (PPP \$)     | 12,896 | 14,257 | 13,185 | 14,384 | +1,199      |

### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security From a list of 15 indicators, survey respondents health services 50.6% were asked to select 5 that they perceived as the 47.9% corruption most urgent for their city. This is the total bar. The 42.1% unemployment higher the percentage of responses per area, the 41.8% public transport greater the priority for the city. air pollution 38.3% fulfilling employment affordable housing The left-hand, dark blue section of each bar shows 30.5% road congestion the Alignment, i.e. the proportion of those basic amenities 24.1% respondents who also answered the survey on the social mobility 20.0% corresponding area by giving it low priority. A school education 17.7% strong Alignment (i.e. consistency across both 16.7% recycling areas explained) means that these areas may green spaces 9.3% benefit from close observation. citizen engagement 6.0%





# Bologna

SMART CITY RANKING

51

Out of 141



48 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

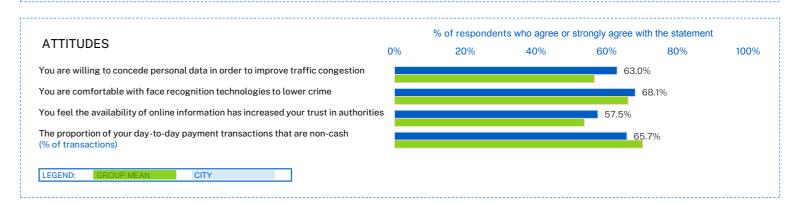
Population HDI 4,438,937 0.924

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.883  | 0.892  | 0.889  | 0.895  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.5   | 82.4   | 82.9   | +0.4        |
| Expected years of schooling | 16.2   | 16.1   | 16.2   | 16.2   | +0.0        |
| Mean years of schooling     | 10.2   | 10.4   | 10.7   | 10.7   | +0.0        |
| GNI per capita (PPP \$)     | 36,141 | 42,776 | 39,901 | 42,840 | +2,939      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 57.7% From a list of 15 indicators, survey respondents air pollution 56.5% were asked to select 5 that they perceived as the 54.0% security most urgent for their city. This is the total bar. The 50.1% road congestion higher the percentage of responses per area, the fulfilling employment 42.8% greater the priority for the city. 39.6% unemployment recycling 25.8% 22.8% The left-hand, dark blue section of each bar shows public transport 21.2% social mobility the Alignment, i.e. the proportion of those corruption 19.5% respondents who also answered the survey on the 18.2% basic amenities corresponding area by giving it low priority. A 18.1% strong Alignment (i.e. consistency across both 17.0% green spaces areas explained) means that these areas may citizen engagement 15.5% benefit from close observation. school education 7.8%





# Bordeaux

SMART CITY RANKING

**78** 

Out of 141



68 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

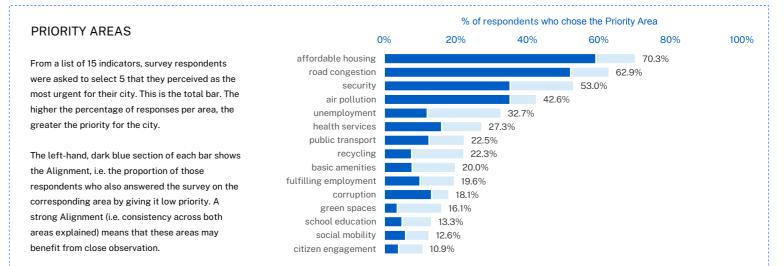
Population HDI 3,511,921 0.900

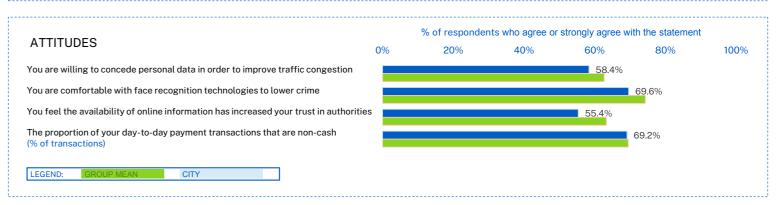
(Eurostat)

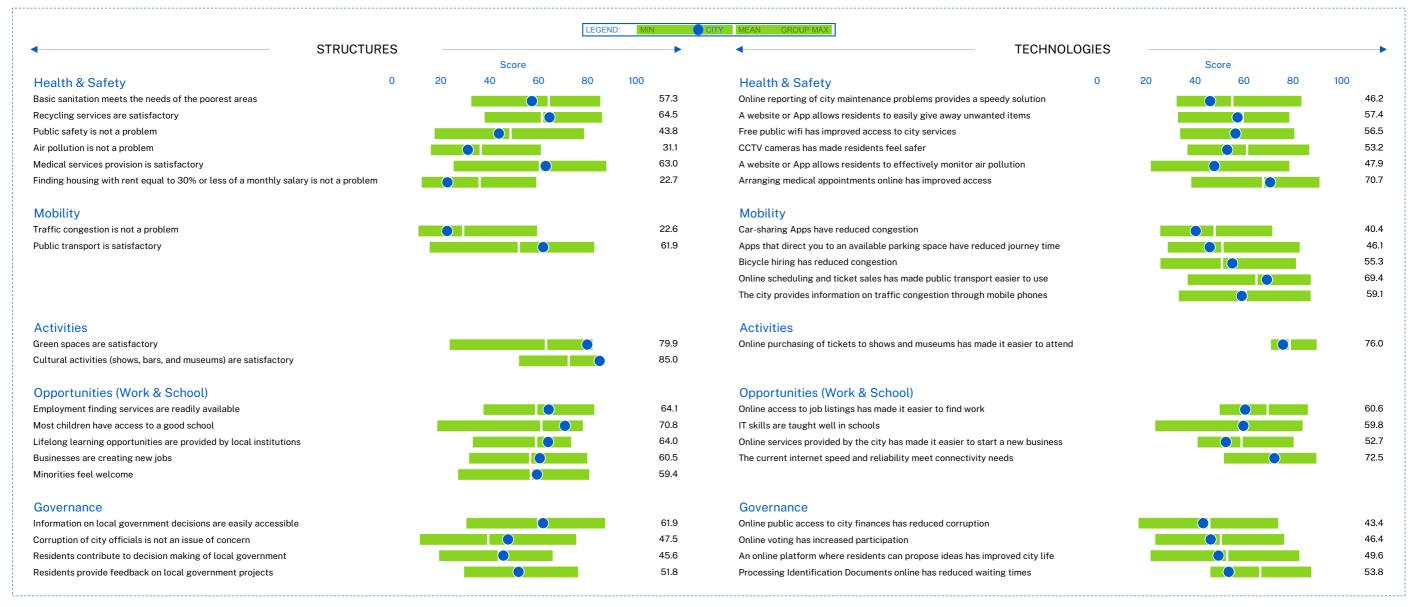


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|-----|-------|----|--------|--------|----|----|-----|-----|------|---|------------|---|
|     |       |    |        |        |    |    |     |     |      |   |            |   |

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.891  | 0.901  | 0.898  | 0.903  | +0.005      |
| Life expectancy at birth    | 82.5   | 82.7   | 82.2   | 82.5   | +0.3        |
| Expected years of schooling | 15.5   | 15.6   | 15.8   | 15.8   | +0.0        |
| Mean years of schooling     | 11.4   | 11.5   | 11.6   | 11.6   | +0.0        |
| GNI per capita (PPP \$)     | 40,511 | 47,173 | 43,048 | 45,937 | +2,889      |







# Boston

SMART CITY RANKING

34

Out of 141



22 out of 118 in 2021

SMART CITY RATING



BBB in 2021

FACTOR RATINGS



STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 675,647 0.949

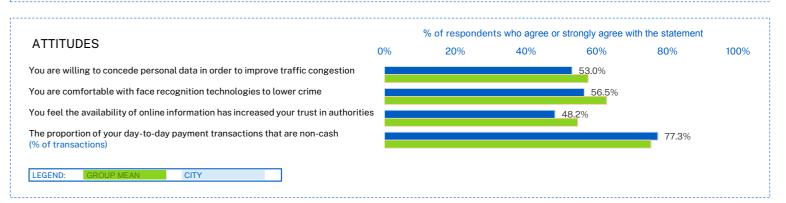
(UN Data)



| lan tile | s hv | Stamen | Design | CC | RY 3 0 | 1 Man | Data | 0 | OnenStreet | Ma |
|----------|------|--------|--------|----|--------|-------|------|---|------------|----|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents road congestion 58.8% were asked to select 5 that they perceived as the public transport 44.3% most urgent for their city. This is the total bar. The 40.7% security higher the percentage of responses per area, the 30.7% unemployment greater the priority for the city. fulfilling employment 29.3% health services 28.3% 27.5% The left-hand, dark blue section of each bar shows school education corruption the Alignment, i.e. the proportion of those air pollution 23.5% respondents who also answered the survey on the social mobility 17.8% corresponding area by giving it low priority. A recycling 15.1% strong Alignment (i.e. consistency across both basic amenities 15.1% areas explained) means that these areas may green spaces 14.8% benefit from close observation. citizen engagement 10.1%





# Brasilia

SMART CITY RANKING

128

Out of 141

not out of 118 in 2021

SMART CITY RATING

C

not in 2021

FACTOR RATINGS

C

STRUCTURES

C

**TECHNOLOGIES** 

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

## City

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI

Population HDI 4,803,877 0.816

(UN World Urbanisation Prospects 2022 estimate)

2018

0.764

75.1

15.7

8.0

23.261

21,972



22.286

| 1 yr change | 2021  | 2020  | 2019  |
|-------------|-------|-------|-------|
| -0.004      | 0.754 | 0.758 | 0.766 |
| -1.3        | 72.8  | 74.0  | 75.3  |
| +0.0        | 15.6  | 15.6  | 15.6  |
| +0.0        | 10.9  | 10.9  | 10.6  |

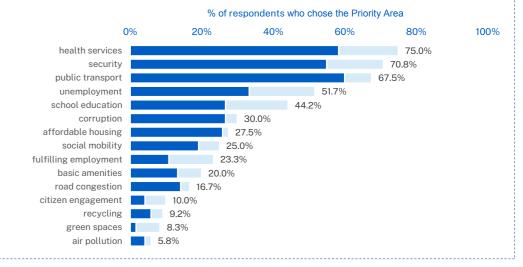
24.563

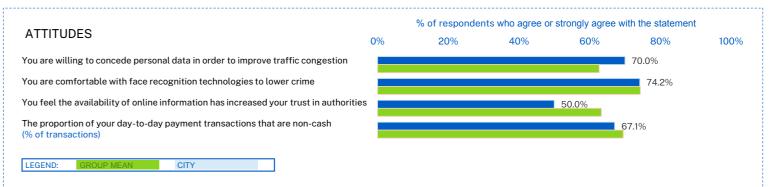
+2,277

# PRIORITY AREAS From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the

were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.







# Bratislava

SMART CITY RANKING

**62** 

Out of 141



42 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

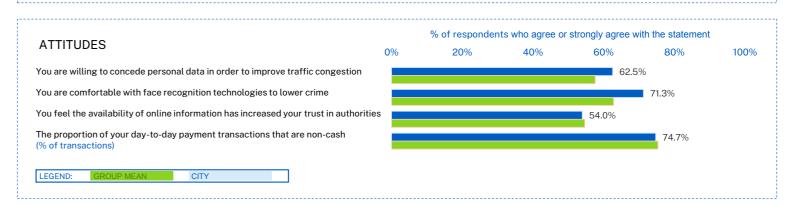
Population HDI 677,024 0.944

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.857  | 0.860  | 0.857  | 0.848  | -0.009      |
| Life expectancy at birth    | 77.4   | 77.5   | 77.0   | 74.9   | -2.1        |
| Expected years of schooling | 14.5   | 14.5   | 14.5   | 14.5   | +0.0        |
| Mean years of schooling     | 12.6   | 12.7   | 12.9   | 12.9   | +0.0        |
| GNI per capita (PPP \$)     | 30,672 | 32,113 | 29,801 | 30,690 | +889        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents health services 57.4% were asked to select 5 that they perceived as the road congestion 55.7% most urgent for their city. This is the total bar. The 40.5% corruption higher the percentage of responses per area, the green spaces 40.3% greater the priority for the city. 31.3% security public transport 31.2% 29.7% The left-hand, dark blue section of each bar shows air pollution 24.8% school education the Alignment, i.e. the proportion of those recycling 22.3% respondents who also answered the survey on the fulfilling employment 20.0% corresponding area by giving it low priority. A 14.6% unemplovment strong Alignment (i.e. consistency across both basic amenities 13.2% areas explained) means that these areas may citizen engagement 10.9% benefit from close observation. social mobility 7.5%





# Brisbane

SMART CITY RANKING

24

Out of 141



40 out of 118 in 2021

SMART CITY RATING

AA

BB in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

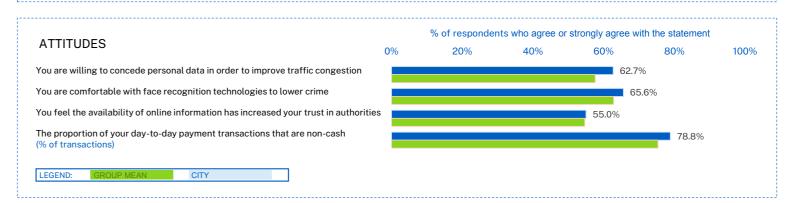
Population HDI 2,054,614 0.944

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.941  | 0.941  | 0.947  | 0.951  | +0.004      |
| Life expectancy at birth    | 83.4   | 83.1   | 84.3   | 84.5   | +0.2        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.1   | 12.4   | 12.4   | +0.0        |
| GNI per capita (PPP \$)     | 43,821 | 52,085 | 49,392 | 52,293 | +2,901      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 80.2% From a list of 15 indicators, survey respondents road congestion 63.1% were asked to select 5 that they perceived as the health services 49.1% most urgent for their city. This is the total bar. The 43.8% higher the percentage of responses per area, the 35.3% security greater the priority for the city. public transport 33.6% fulfilling employment 30.9% The left-hand, dark blue section of each bar shows corruption 21.0% 19.9% recycling the Alignment, i.e. the proportion of those school education 19.2% respondents who also answered the survey on the basic amenities 16.6% corresponding area by giving it low priority. A social mobility strong Alignment (i.e. consistency across both green spaces 15.2% areas explained) means that these areas may air pollution 14.7% benefit from close observation. citizen engagement 8.9%





# Brussels

SMART CITY RANKING

**35** 

Out of 141



45 out of 118 in 2021

SMART CITY RATING

**BBB** 

BBB in 2021

FACTOR RATINGS

BB

STRUCTURES

A

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

Population HDI 1,226,329 0.953

(Eurostat)

Country

HDI



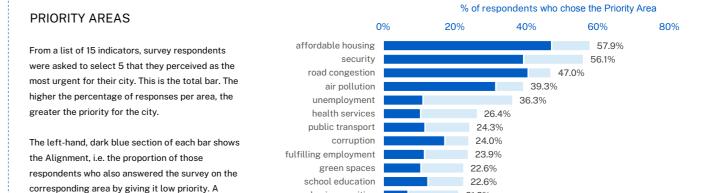
| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.928 | 0.937 | +0.009      |
| 80.8  | 81.9  | +1.1        |

Life expectancy at birth 81.5 81.6 Expected years of schooling 19.7 19.8 18.0 18.0 +0.0 Mean years of schooling 11.8 12.1 12.4 12.4 +0.0 43,821 +2,901 52.293 GNI per capita (PPP \$) 52.085 49,392

2018

2019

0.931



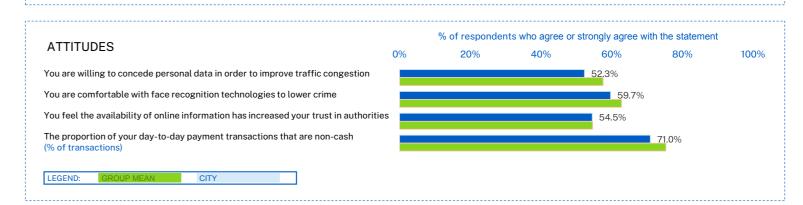
basic amenities

citizen engagement

social mobility

recycling

100%

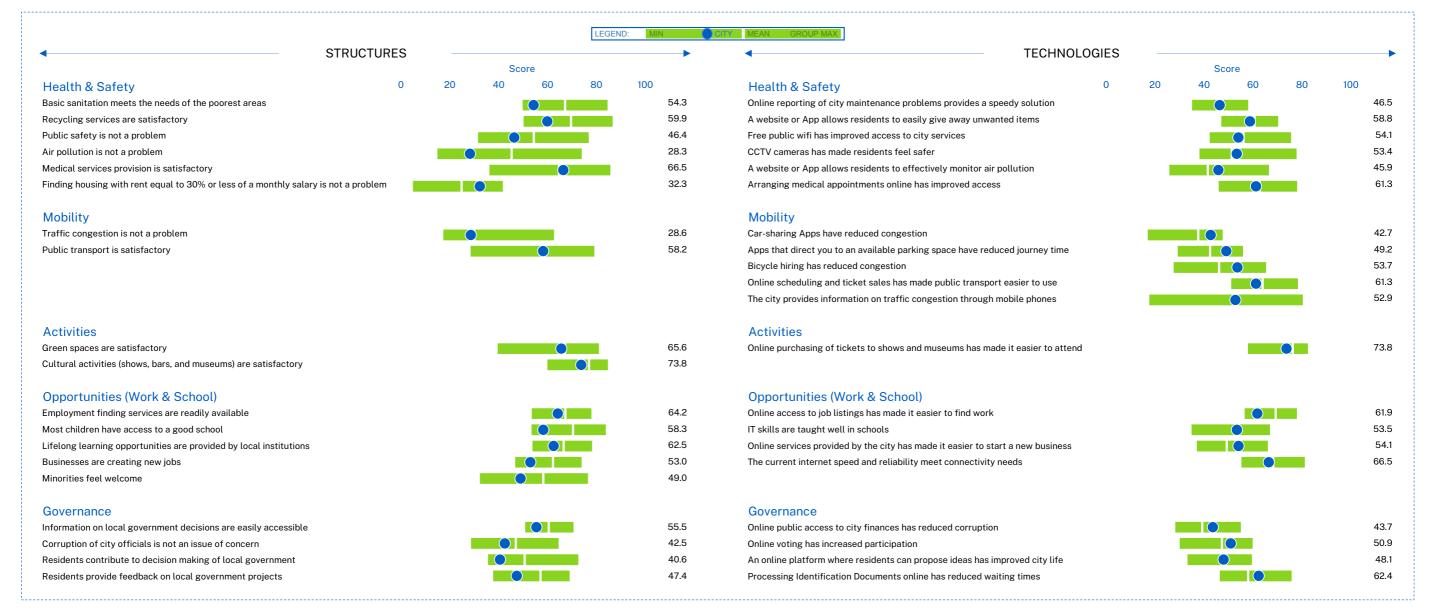


21.2%

20.6%

17.3%

14.4%



strong Alignment (i.e. consistency across both

areas explained) means that these areas may

# Bucharest

SMART CITY RANKING

104

Out of 141



87 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

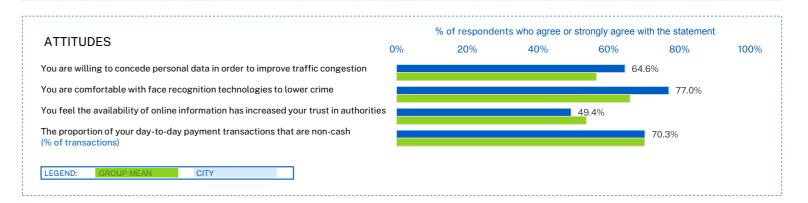
Population HDI 1,823,526 0.926

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.816  | 0.828  | 0.824  | 0.821  | -0.003      |
| Life expectancy at birth    | 75.9   | 76.1   | 75.4   | 74.2   | -1.2        |
| Expected years of schooling | 14.3   | 14.3   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 11.0   | 11.1   | 11.3   | 11.3   | +0.0        |
| GNI per capita (PPP \$)     | 23,906 | 29,497 | 28,359 | 30,027 | +1,669      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% air pollution 66.9% From a list of 15 indicators, survey respondents road congestion 64.2% were asked to select 5 that they perceived as the 50.2% corruption most urgent for their city. This is the total bar. The 48.1% health services higher the percentage of responses per area, the 41.8% basic amenities greater the priority for the city. recycling 34.7% green spaces 31.5% The left-hand, dark blue section of each bar shows public transport 26.5% school education 26.4% the Alignment, i.e. the proportion of those security 24.6% respondents who also answered the survey on the fulfilling employment 23.2% corresponding area by giving it low priority. A affordable housing strong Alignment (i.e. consistency across both citizen engagement areas explained) means that these areas may unemployment 9.4% benefit from close observation. social mobility 4.3%





# Budapest

SMART CITY RANKING

87

Out of 141



78 out of 118 in 2021

SMART CITY RATING

B

B in 2021

FACTOR RATINGS

B

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

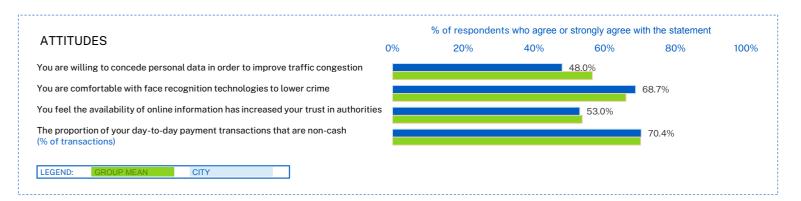
Population HDI 1,752,286 0.922

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.845  | 0.854  | 0.849  | 0.846  | -0.003      |
| Life expectancy at birth    | 76.7   | 76.9   | 75.7   | 74.5   | -1.2        |
| Expected years of schooling | 15.1   | 15.2   | 15.0   | 15.0   | +0.0        |
| Mean years of schooling     | 11.9   | 12.0   | 12.3   | 12.3   | +0.0        |
| GNI per capita (PPP \$)     | 27,144 | 31,329 | 30,487 | 32,789 | +2,302      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 65.6% From a list of 15 indicators, survey respondents health services 62.8% were asked to select 5 that they perceived as the 46.6% security most urgent for their city. This is the total bar. The 44.2% corruption higher the percentage of responses per area, the fulfilling employment 39.8% greater the priority for the city. air pollution 37.7% road congestion The left-hand, dark blue section of each bar shows green spaces 28.7% 27.8% unemployment the Alignment, i.e. the proportion of those basic amenities 22.5% respondents who also answered the survey on the 20.5% school education corresponding area by giving it low priority. A public transport 18.5% strong Alignment (i.e. consistency across both recycling 13 1% areas explained) means that these areas may social mobility 10.4% benefit from close observation. citizen engagement 7.1%





# **Buenos Aires**

SMART CITY RANKING

124

Out of 141



104 out of 118 in 2021

SMART CITY RATING

C

D in 2021

FACTOR RATINGS

C

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

Population HDI 15,567,820 0.812

(UN Data)

Country

HDI



| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.840 | 0.842 | +0.002      |
| 75.9  | 75.4  | -0.5        |

Life expectancy at birth 76.5 76.7 Expected years of schooling 17.6 17.7 17.9 17.9 +0.0 Mean years of schooling 10.6 10.9 11.2 11.2 +0.0 17,611 +1,747 GNI per capita (PPP \$) 21.190 19,178 20,925

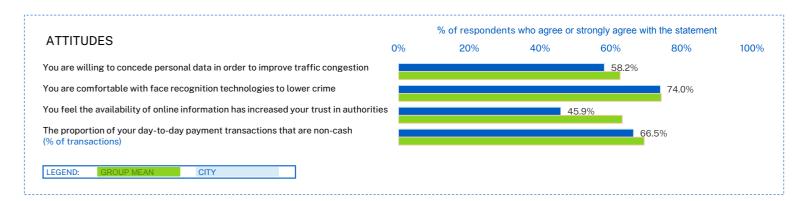
2019

0.845

2018

0.830

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security From a list of 15 indicators, survey respondents 57.4% were asked to select 5 that they perceived as the 52.3% corruption most urgent for their city. This is the total bar. The health services 49.3% higher the percentage of responses per area, the affordable housing 38.9% greater the priority for the city. school education 38.5% basic amenities 30.69 fulfilling employment 30.5% The left-hand, dark blue section of each bar shows road congestion the Alignment, i.e. the proportion of those air pollution 18.6% respondents who also answered the survey on the 15.2% public transport corresponding area by giving it low priority. A recycling 13.7% strong Alignment (i.e. consistency across both citizen engagement 11 3% areas explained) means that these areas may social mobility 10.0%



green spaces 8.5%





49

Out of 141



47 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

Population HDI 3,343,528 0.936

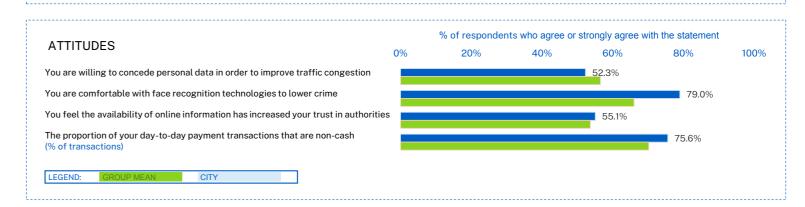
(UN Data)



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|-------------|----------|----------|-------|-----|-----|------|---|--------------|
|-------------|----------|----------|-------|-----|-----|------|---|--------------|

| Country<br>HDI              | 2018<br>0.906 | 2019<br>0.916 | 2020<br>0.922 | 2021<br>0.925 | 1 yr change<br>+0.003 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 82.8          | 83.0          | 83.6          | 83.7          | +0.1                  |
| Expected years of schooling | 16.4          | 16.5          | 16.5          | 16.5          | +0.0                  |
| Mean years of schooling     | 12.2          | 12.2          | 12.5          | 12.5          | +0.0                  |
| GNI per capita (PPP \$)     | 36,757        | 43,044        | 42,698        | 44,501        | +1,803                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% fulfilling employment From a list of 15 indicators, survey respondents 57.3% unemployment were asked to select 5 that they perceived as the road congestion 50.3% most urgent for their city. This is the total bar. The affordable housing 44.4% higher the percentage of responses per area, the 37.4% air pollution greater the priority for the city. corruption 35.7% basic amenities 26.7% 23.9% The left-hand, dark blue section of each bar shows green spaces 22.4% security the Alignment, i.e. the proportion of those public transport 17.8% respondents who also answered the survey on the 17.7% citizen engagement corresponding area by giving it low priority. A 16.7% strong Alignment (i.e. consistency across both 16.6% recycling areas explained) means that these areas may social mobility 13.5% benefit from close observation. school education 13.5%







108

Out of 141



105 out of 118 in 2021

SMART CITY RATING

CC

C in 2021

FACTOR RATINGS

C

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

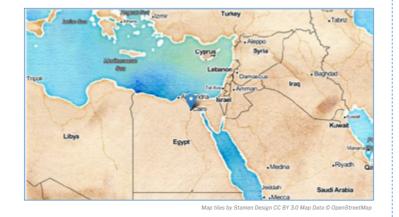
All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

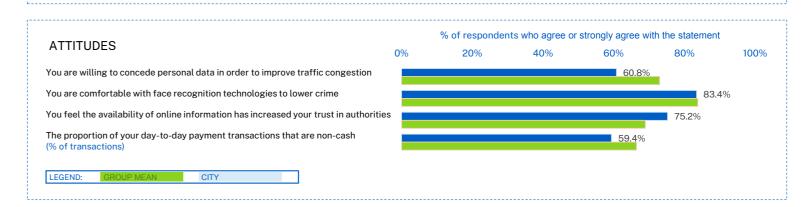
Population HDI 9,539,673 0.779

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.700  | 0.707  | 0.734  | 0.731  | -0.003      |
| Life expectancy at birth    | 71.8   | 72.0   | 71.0   | 70.2   | -0.8        |
| Expected years of schooling | 13.1   | 13.3   | 13.8   | 13.8   | +0.0        |
| Mean years of schooling     | 7.3    | 7.4    | 9.6    | 9.6    | +0.0        |
| GNI per capita (PPP \$)     | 10,744 | 11,466 | 11,581 | 11,732 | +151        |
|                             |        |        |        |        |             |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% 52.2% health services From a list of 15 indicators, survey respondents 45.5% unemployment were asked to select 5 that they perceived as the road congestion 44.9% most urgent for their city. This is the total bar. The affordable housing 42.6% higher the percentage of responses per area, the 41.4% air pollution greater the priority for the city. basic amenities 41.0% corruption 40.3% The left-hand, dark blue section of each bar shows security 28.2% school education 26.6% the Alignment, i.e. the proportion of those fulfilling employment 24.8% respondents who also answered the survey on the 24.6% public transport corresponding area by giving it low priority. A recycling 24.3% strong Alignment (i.e. consistency across both green spaces 21.8% areas explained) means that these areas may citizen engagement 10.6% benefit from close observation. social mobility 6.5%





# Canberra

SMART CITY RANKING

3

Out of 141

not out of 118 in 2021

SMART CITY RATING



not in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

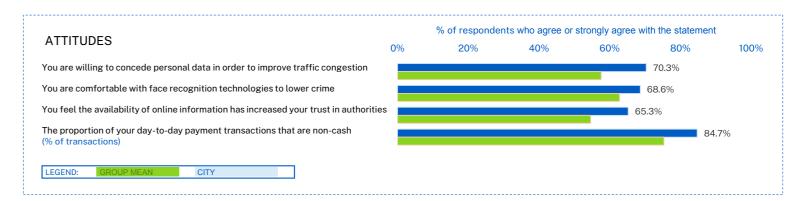
Population HDI 395,790 0.980

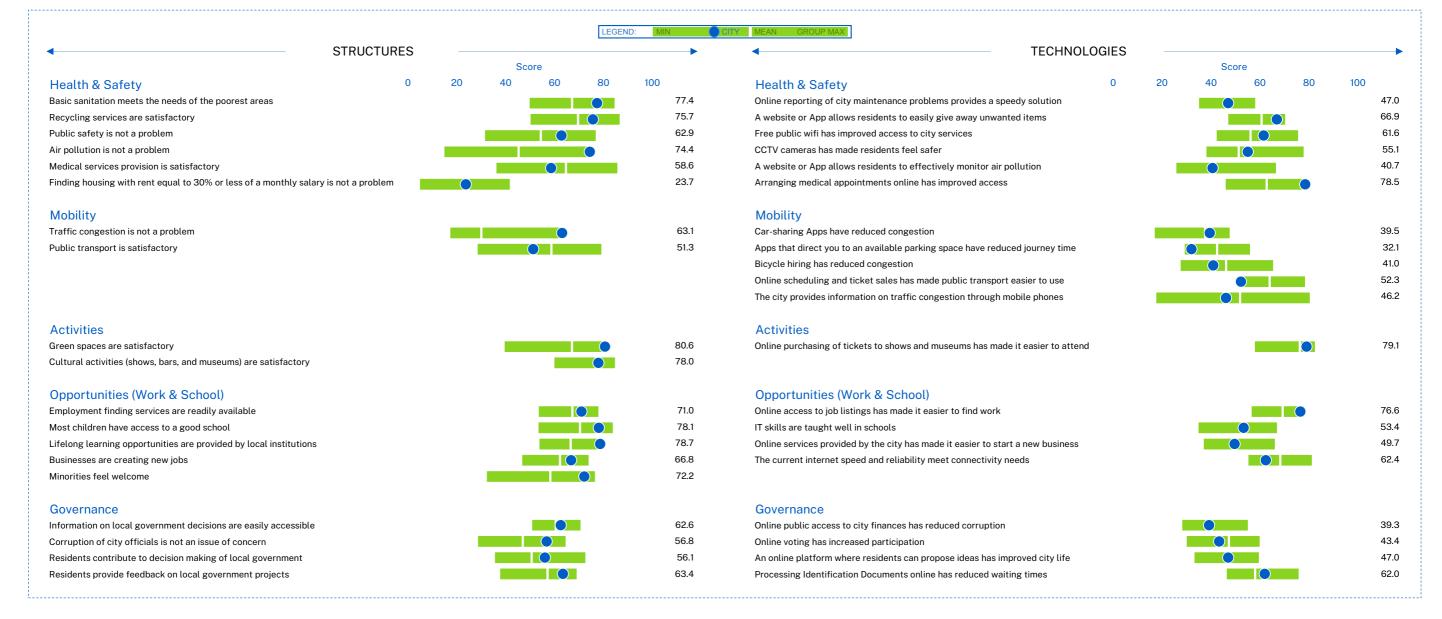
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.941  | 0.941  | 0.947  | 0.951  | +0.004      |
| Life expectancy at birth    | 83.4   | 83.1   | 84.3   | 84.5   | +0.2        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.1   | 12.4   | 12.4   | +0.0        |
| GNI per capita (PPP \$)     | 43,821 | 52,085 | 49,392 | 52,293 | +2,901      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 88.1% From a list of 15 indicators, survey respondents health services 72.0% were asked to select 5 that they perceived as the public transport 50.8% most urgent for their city. This is the total bar. The school education 31.4% higher the percentage of responses per area, the road congestion 31.4% greater the priority for the city. unemployment 29.7% recycling 26.3% 22.0% The left-hand, dark blue section of each bar shows security 20.3% social mobility the Alignment, i.e. the proportion of those fulfilling employment 18.6% respondents who also answered the survey on the basic amenities 16.1% corresponding area by giving it low priority. A citizen engagement 15.3% strong Alignment (i.e. consistency across both green spaces 11 9% areas explained) means that these areas may corruption 10.2% benefit from close observation. air pollution 9.3%





# Cape Town

**SMART** CITY **RANKING** 

125

Out of 141



106 out of 118 in 2021

**SMART CITY RATING** 

C in 2021

**FACTOR RATINGS** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

HDI Population 4.800.954 0.751

(UN World Urbanisation Prospects 2022

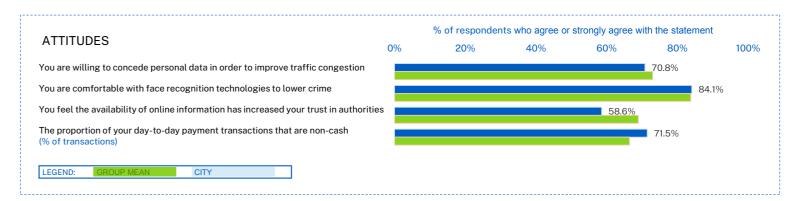
estimate)



| 2020 | 2021 | 1 vr obongo |
|------|------|-------------|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.705  | 0.709  | 0.727  | 0.713  | -0.014      |
| Life expectancy at birth    | 63.9   | 64.1   | 65.3   | 62.3   | -2.9        |
| Expected years of schooling | 13.7   | 13.8   | 13.6   | 13.6   | +0.0        |
| Mean years of schooling     | 10.2   | 10.2   | 11.4   | 11.4   | +0.0        |
| GNI per capita (PPP \$)     | 11,756 | 12,129 | 12,450 | 12,948 | +499        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% unemployment From a list of 15 indicators, survey respondents 64.9% affordable housing were asked to select 5 that they perceived as the 54.2% security most urgent for their city. This is the total bar. The 49.5% corruption higher the percentage of responses per area, the health services 45.4% greater the priority for the city. basic amenities 45.1% fulfilling employment 38.7% The left-hand, dark blue section of each bar shows school education 27.1% public transport the Alignment, i.e. the proportion of those road congestion 20.6% respondents who also answered the survey on the recycling 11.9% corresponding area by giving it low priority. A air pollution 11.6% strong Alignment (i.e. consistency across both green spaces 8.6% areas explained) means that these areas may citizen engagement 7.8% benefit from close observation. social mobility 6.0%





# Cardiff

SMART CITY RANKING

94

Out of 141

not out of 118 in 2021

SMART CITY RATING

CC

not in 2021

FACTOR RATINGS

CCC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

### City

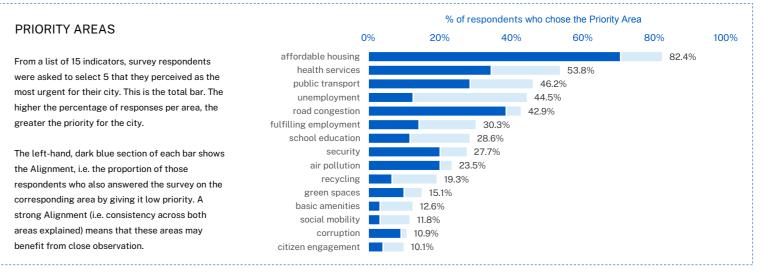
Population HDI 497,646 0.898

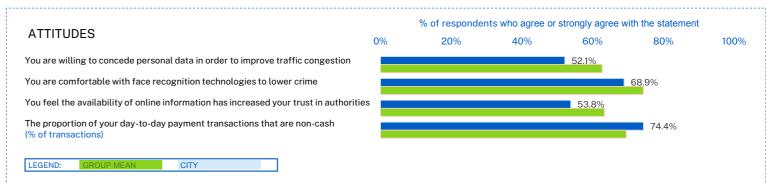
(Eurostat)



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|--------------|--------|--------|----|--------|-----|------|---|----------|
|              |        |        |    |        |     |      |   |          |

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.932  | 0.924  | 0.929  | +0.005      |
| Life expectancy at birth    | 81.2   | 81.3   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.4   | 17.5   | 17.3   | 17.3   | +0.0        |
| Mean years of schooling     | 13.0   | 13.2   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 39,507 | 46,071 | 42,375 | 45,225 | +2,850      |







# Chengdu

**SMART** CITY **RANKING** 

Out of 141



84 out of 118 in 2021

**SMART CITY RATING** 

CCC

CCC in 2021

**FACTOR RATINGS** 

CCC

**STRUCTURES** 

CCC

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

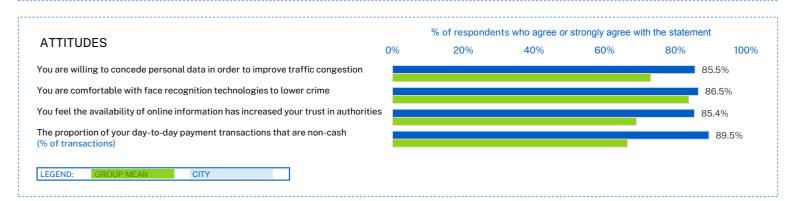
HDI Population 9,478,521 0.740

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |  |
|-----------------------------|--------|--------|--------|--------|-------------|--|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |  |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |  |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |  |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |  |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% road congestion From a list of 15 indicators, survey respondents air pollution 49.7% were asked to select 5 that they perceived as the fulfilling employment 43.0% most urgent for their city. This is the total bar. The affordable housing 42.3% higher the percentage of responses per area, the 38.4% corruption greater the priority for the city. health services 34.2% basic amenities 26.0% 24.8% The left-hand, dark blue section of each bar shows school education 24.1% unemployment the Alignment, i.e. the proportion of those social mobility 20.9% respondents who also answered the survey on the 20.4% recycling corresponding area by giving it low priority. A 19.6% citizen engagement strong Alignment (i.e. consistency across both 17.0% security areas explained) means that these areas may public transport 16.3%



13.8%

green spaces



# Chicago

SMART CITY RANKING

**61** 

Out of 141



56 out of 118 in 2021

SMART CITY RATING

BB

B in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

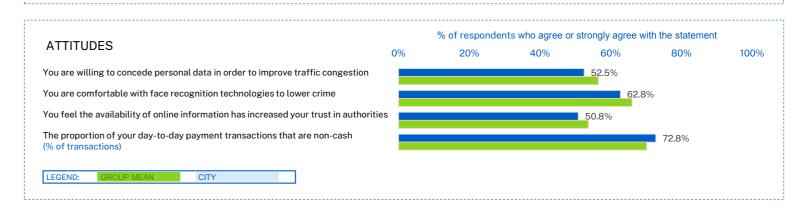
Population HDI 2,746,388 0.929

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 61.7% security From a list of 15 indicators, survey respondents affordable housing 61.3% were asked to select 5 that they perceived as the health services 45.8% most urgent for their city. This is the total bar. The 41.4% corruption higher the percentage of responses per area, the school education 37.8% greater the priority for the city. unemployment 37.5% fulfilling employment 33.2% 33.1% The left-hand, dark blue section of each bar shows road congestion air pollution 22.2% the Alignment, i.e. the proportion of those public transport 21.5% respondents who also answered the survey on the 17.5% basic amenities corresponding area by giving it low priority. A social mobility 14.3% strong Alignment (i.e. consistency across both recycling 12 9% areas explained) means that these areas may green spaces 12.2% benefit from close observation. citizen engagement





# Chongqing

**SMART** CITY **RANKING** 

86

Out of 141



74 out of 118 in 2021

**SMART CITY RATING** 

CCC

CCC in 2021

**FACTOR RATINGS** 

CCC

**STRUCTURES** 

CCC

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

### City

HDI Population 16,874,741 0.774

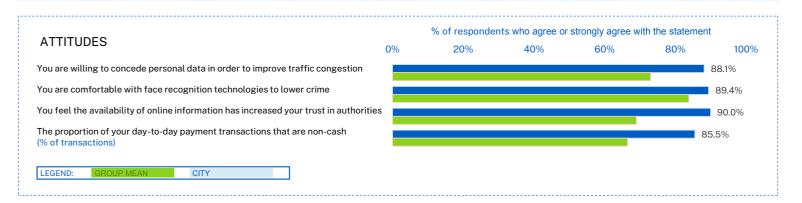
(UN World Urbanisation Prospects 2022

estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% road congestion From a list of 15 indicators, survey respondents 40.9% affordable housing were asked to select 5 that they perceived as the air pollution 40.5% most urgent for their city. This is the total bar. The fulfilling employment 40.2% higher the percentage of responses per area, the health services 36.2% greater the priority for the city. basic amenities 29.3% corruption 28.6% social mobility 27.2% The left-hand, dark blue section of each bar shows school education 24.0% the Alignment, i.e. the proportion of those unemployment 22.6% respondents who also answered the survey on the 22.6% public transport corresponding area by giving it low priority. A 22.5% recycling strong Alignment (i.e. consistency across both 22.3% security areas explained) means that these areas may green spaces 18.1% benefit from close observation. citizen engagement





# Copenhagen

**SMART** CITY **RANKING** 

Out of 141



5 out of 118 in 2021

**SMART CITY RATING** 



AAA in 2021

**FACTOR RATINGS** 



**STRUCTURES** 



**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

HDI Population 1,855,084 0.967

(Eurostat)

Country

Life expectancy at birth

GNI per capita (PPP \$)

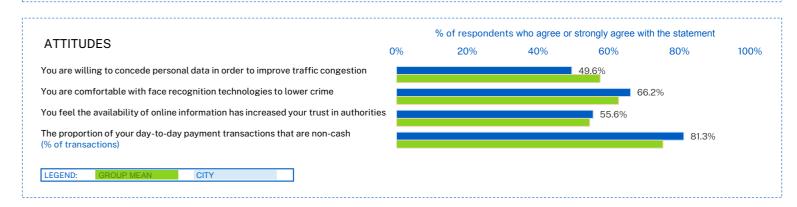
Expected years of schooling Mean years of schooling

HDI



| ) | 19   |  | 20 | )2(  | ) |  | 2  | 02   | 1 | 1 | yr | ch | ang  | ge  |  |
|---|------|--|----|------|---|--|----|------|---|---|----|----|------|-----|--|
| S | 940  |  | 0  | .94  | 7 |  | 0  | .948 | 8 |   |    |    | +0.0 | 001 |  |
| 3 | 30.9 |  |    | 81.  | 6 |  |    | 81.4 | 4 |   |    |    | -    | 0.2 |  |
| 1 | 18.9 |  |    | 18.  | 0 |  |    | 18.0 | 0 |   |    |    | +    | 0.0 |  |
| 1 | 12.6 |  |    | 13.  | 0 |  |    | 13.0 | 0 |   |    |    | +    | 0.0 |  |
| 6 | 662  |  | 58 | 3,14 | 4 |  | 60 | ,36  | 5 |   |    |    | +2,2 | 221 |  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 46.2% road congestion were asked to select 5 that they perceived as the air pollution 44.4% most urgent for their city. This is the total bar. The 31.2% green spaces higher the percentage of responses per area, the 29.5% public transport greater the priority for the city. health services 25.1% unemployment 25.0% security 23.6% The left-hand, dark blue section of each bar shows recycling 22.1% the Alignment, i.e. the proportion of those basic amenities 19.0% respondents who also answered the survey on the fulfilling employment 18.8% corresponding area by giving it low priority. A school education 18.8% strong Alignment (i.e. consistency across both social mobility 18.4% areas explained) means that these areas may citizen engagement 17.3% benefit from close observation. corruption 15.5%







105

Out of 141



94 out of 118 in 2021

**SMART CITY RATING** 

CC in 2021

**FACTOR RATINGS** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI

Population HDI 3,206,576 0.730

(UN World Urbanisation Prospects 2022 estimate)

2018

0.647

69.4

12.3

6.5

6.681

6.829



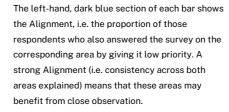
6,107

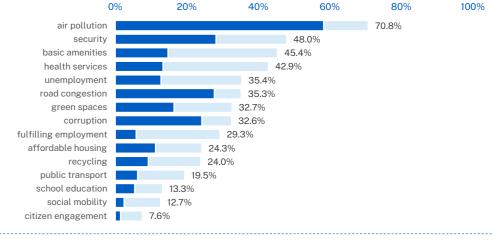
| ! | 1 yr change | 2021  | 2020  | 2019  |
|---|-------------|-------|-------|-------|
| ) | -0.009      | 0.633 | 0.642 | 0.645 |
| ) | -2.9        | 67.2  | 70.2  | 69.7  |
| j | +0.0        | 11.9  | 11.9  | 12.2  |
| ) | +0.0        | 6.7   | 6.7   | 6.5   |

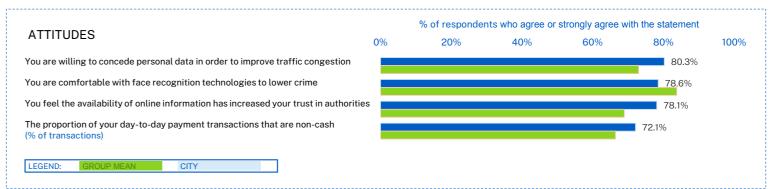
6.590

+482

### % of respondents who chose the Priority Area PRIORITY AREAS 0% air pollution From a list of 15 indicators, survey respondents security were asked to select 5 that they perceived as the basic amenities most urgent for their city. This is the total bar. The health services higher the percentage of responses per area, the unemplovment greater the priority for the city. road congestion green spaces









# Denver

SMART CITY RANKING

**53** 

Out of 141



34 out of 118 in 2021

SMART CITY RATING

**BBB** 

BBB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

Population HDI 715,522 0.942

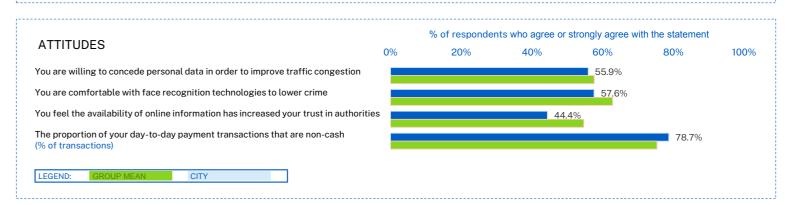
(UN Data)

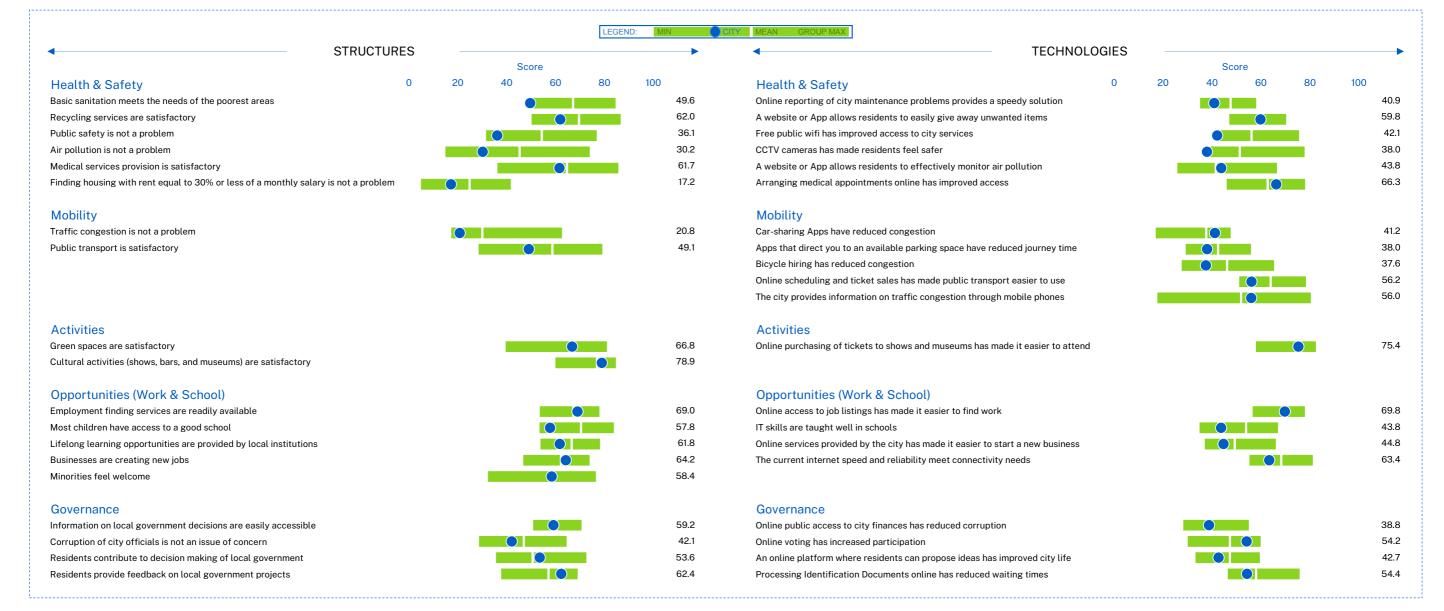


| Map tiles by | Stamen | Design | CC | BY | 3.0 | Мар | Data | 0 | OpenStreetMa |
|--------------|--------|--------|----|----|-----|-----|------|---|--------------|
|              |        |        |    |    |     |     |      |   |              |

| Country<br>HDI              | 2018<br>0.920 | 2019<br>0.926 | 2020<br>0.920 | 2021<br>0.921 | 1 yr change<br>+0.001 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 78.9          | 78.9          | 77.4          | 77.2          | -0.2                  |
| Expected years of schooling | 16.3          | 16.3          | 16.3          | 16.3          | +0.0                  |
| Mean years of schooling     | 13.4          | 13.4          | 13.7          | 13.7          | +0.0                  |
| GNI per capita (PPP \$)     | 56,140        | 63,826        | 61,462        | 64,765        | +3,304                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 83.5% From a list of 15 indicators, survey respondents road congestion 57.8% were asked to select 5 that they perceived as the air pollution 42.6% most urgent for their city. This is the total bar. The 39.7% security higher the percentage of responses per area, the school education 33.5% greater the priority for the city. unemployment 31.7% health services 28.8% fulfilling employment 23.2% The left-hand, dark blue section of each bar shows public transport 22.1% the Alignment, i.e. the proportion of those corruption 19.2% respondents who also answered the survey on the basic amenities 16.1% corresponding area by giving it low priority. A recycling 15.4% strong Alignment (i.e. consistency across both 14 0% social mobility areas explained) means that these areas may green spaces 12.8% benefit from close observation. citizen engagement 7.8%







**59** 

Out of 141

not out of 118 in 2021

SMART CITY RATING

BB

not in 2021

FACTOR RATINGS

BB

STRUCTURES

B

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

## BACKGROUND INFORMATION

# City

Population HDI 1,186,023 0.855

(UN Data)

Country

HDI



| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.854 | 0.855 | +0.001      |
| 79.1  | 79.3  | +0.2        |

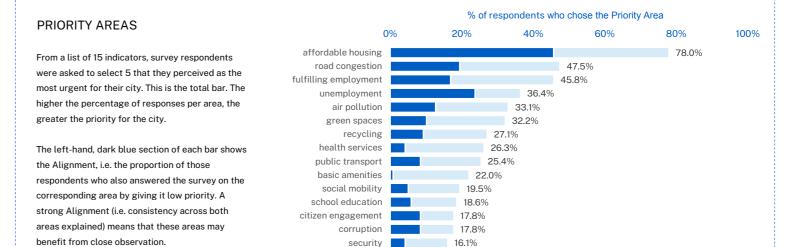
81.0 Life expectancy at birth 80.9 Expected years of schooling 12.0 12.3 12.6 12.6 +0.0 Mean years of schooling 9.9 10.0 10.0 10.0 +0.0 +3,413 GNI per capita (PPP \$) 89.089 87.792 83,721 87,134

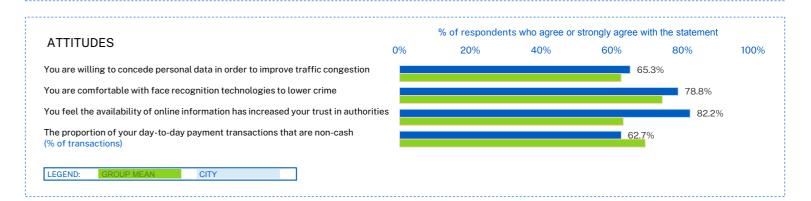
2019

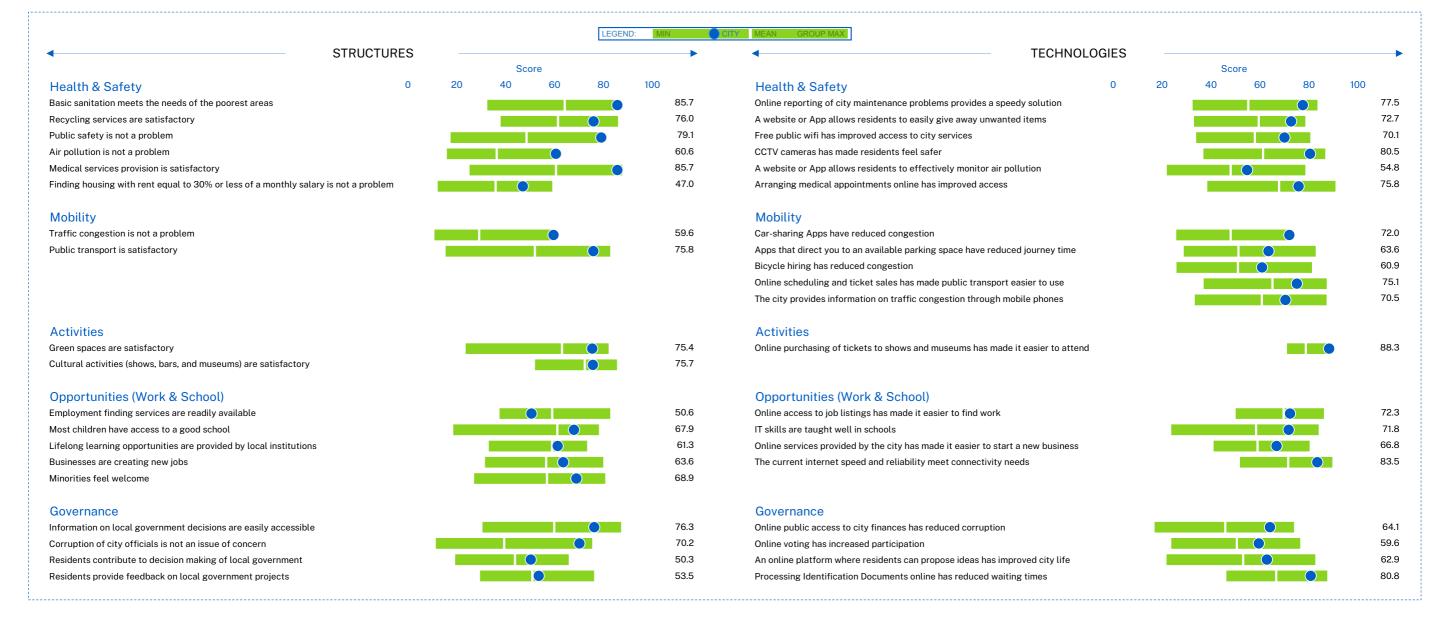
0.859

2018

0.853









Out of 141



14 out of 118 in 2021

**SMART CITY RATING** 

BB

A in 2021

**FACTOR RATINGS** 

BB

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

HDI Population 2,964,382 0.911

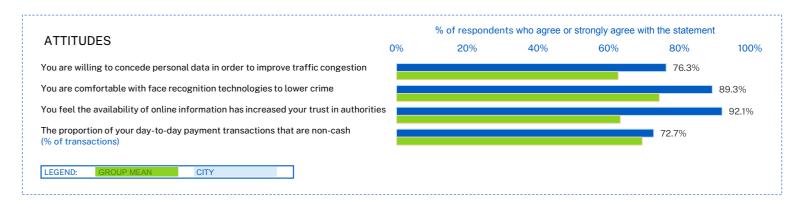
(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.866  | 0.890  | 0.912  | 0.911  | -0.001      |
| Life expectancy at birth    | 77.8   | 78.0   | 79.0   | 78.7   | -0.2        |
| Expected years of schooling | 13.6   | 14.3   | 15.7   | 15.7   | +0.0        |
| Mean years of schooling     | 11.0   | 12.1   | 12.7   | 12.7   | +0.0        |
| GNI per capita (PPP \$)     | 66,912 | 67,462 | 63,016 | 62,574 | -443        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 78.0% From a list of 15 indicators, survey respondents fulfilling employment 52.0% were asked to select 5 that they perceived as the unemployment 51.8% most urgent for their city. This is the total bar. The 42.9% road congestion higher the percentage of responses per area, the 30.7% health services greater the priority for the city. air pollution 27.5% recycling 23.9% 23.3% The left-hand, dark blue section of each bar shows green spaces school education 22.7% the Alignment, i.e. the proportion of those citizen engagement 19.8% respondents who also answered the survey on the 19.2% public transport corresponding area by giving it low priority. A social mobility 18.3% strong Alignment (i.e. consistency across both security 15.2% areas explained) means that these areas may basic amenities 13.3%

10.4%



corruption



benefit from close observation.



**63** 

Out of 141



44 out of 118 in 2021

SMART CITY RATING

BB

BBB in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

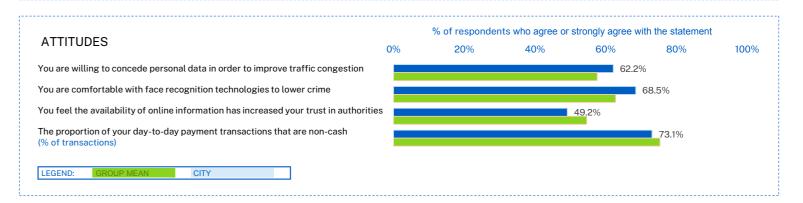
Population HDI 1,423,957 0.950

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.942  | 0.955  | 0.943  | 0.945  | +0.002      |
| Life expectancy at birth    | 82.1   | 82.3   | 82.5   | 82.0   | -0.5        |
| Expected years of schooling | 18.8   | 18.7   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.5   | 12.7   | 11.6   | 11.6   | +0.0        |
| GNI per capita (PPP \$)     | 55,660 | 68,371 | 67,736 | 76,169 | +8,433      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 60% 100% affordable housing 90.1% From a list of 15 indicators, survey respondents 68.9% health services were asked to select 5 that they perceived as the 38.0% security most urgent for their city. This is the total bar. The public transport 37.2% higher the percentage of responses per area, the 35.9% road congestion greater the priority for the city. unemployment 34.0% corruption 27.8% fulfilling employment 24.6% The left-hand, dark blue section of each bar shows school education 20.2% the Alignment, i.e. the proportion of those air pollution 18.8% respondents who also answered the survey on the 17.7% recycling corresponding area by giving it low priority. A social mobility 15.1% strong Alignment (i.e. consistency across both basic amenities 14 1% areas explained) means that these areas may green spaces 12.0% benefit from close observation. citizen engagement 7.6%





# Dusseldorf

SMART CITY RANKING

38

Out of 141



27 out of 118 in 2021

SMART CITY RATING

BB

A in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

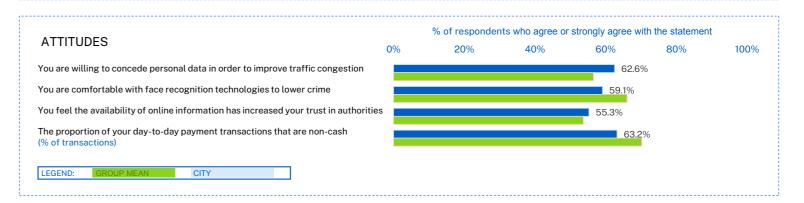
Population HDI 17,925,570 0.939

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.939  | 0.947  | 0.944  | 0.942  | -0.002      |
| Life expectancy at birth    | 81.2   | 81.3   | 81.2   | 80.6   | -0.5        |
| Expected years of schooling | 17.1   | 17.0   | 17.0   | 17.0   | +0.0        |
| Mean years of schooling     | 14.1   | 14.2   | 14.1   | 14.1   | +0.0        |
| GNI per capita (PPP \$)     | 46,946 | 55,314 | 53,078 | 54,534 | +1,457      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 65.2% From a list of 15 indicators, survey respondents road congestion 49.5% were asked to select 5 that they perceived as the 47.7% security most urgent for their city. This is the total bar. The 41.7% unemployment higher the percentage of responses per area, the 39.6% air pollution greater the priority for the city. public transport 27.6% recycling 24.3% 24.0% The left-hand, dark blue section of each bar shows basic amenities school education 20.4% the Alignment, i.e. the proportion of those green spaces 19.1% respondents who also answered the survey on the 17.1% fulfilling employment corresponding area by giving it low priority. A 15.0% health services strong Alignment (i.e. consistency across both 14.8% social mobility areas explained) means that these areas may citizen engagement 13.4% benefit from close observation. corruption 12.5%





# Geneva

SMART CITY RANKING

9

Out of 141



6 out of 118 in 2021

SMART CITY RATING



AA in 2021

FACTOR RATINGS



STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

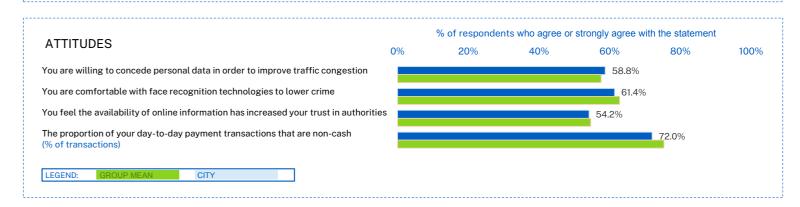
Population HDI 506,343 0.966

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.946  | 0.955  | 0.956  | 0.962  | +0.006      |
| Life expectancy at birth    | 83.6   | 83.8   | 83.1   | 84.0   | +0.9        |
| Expected years of schooling | 16.2   | 16.3   | 16.5   | 16.5   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.9   | 13.9   | +0.0        |
| GNI per capita (PPP \$)     | 59,375 | 69,394 | 65,011 | 66,933 | +1,922      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 82.1% From a list of 15 indicators, survey respondents 57.4% road congestion were asked to select 5 that they perceived as the unemployment 49.7% most urgent for their city. This is the total bar. The 35.4% security higher the percentage of responses per area, the fulfilling employment 30.8% greater the priority for the city. air pollution 29.4% corruption 25.3% health services 22.8% The left-hand, dark blue section of each bar shows recycling 21.9% the Alignment, i.e. the proportion of those public transport 21.1% respondents who also answered the survey on the 18.9% green spaces corresponding area by giving it low priority. A social mobility 14.0% strong Alignment (i.e. consistency across both 13.8% school education areas explained) means that these areas may citizen engagement 11.8% benefit from close observation. basic amenities 9.3%





# Glasgow

**SMART** CITY **RANKING** 

80

Out of 141



65 out of 118 in 2021

**SMART CITY RATING** 

BB

B in 2021

**FACTOR RATINGS** 

BB

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

Population HDI 627,479 0.921

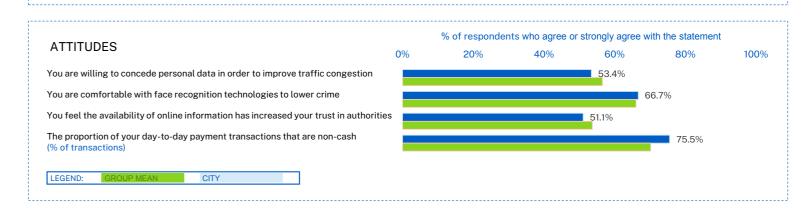
(Eurostat)



| Country  | 2018<br>0.920 | 2019<br>0.932 | 2020<br>0.924 | 2021<br>0.929 | 1 yr change |
|--|---------------|---------------|---------------|---------------|-------------|
| Life expectancy at birth                             | 81.2<br>17.4  | 81.3<br>17.5  | 80.4          | 80.7<br>17.3  | +0.3        |
| Expected years of schooling  Mean years of schooling | 13.0          | 13.2          | 13.4          | 13.4          | +0.0        |
| GNI per capita (PPP \$)                              | 39,507        | 46,071        | 42,375        | 45,225        | +2,850      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 72.0% From a list of 15 indicators, survey respondents 58.4% health services were asked to select 5 that they perceived as the unemployment 46.8% most urgent for their city. This is the total bar. The fulfilling employment 39.5% higher the percentage of responses per area, the road congestion 36.0% greater the priority for the city. public transport 31.7% school education 28.9% 28.5% The left-hand, dark blue section of each bar shows recycling 25.0% security the Alignment, i.e. the proportion of those air pollution 21.6% respondents who also answered the survey on the social mobility 19.1% corresponding area by giving it low priority. A 18.2% green spaces strong Alignment (i.e. consistency across both hasic amenities 15 1% areas explained) means that these areas may

14.3%



corruption

citizen engagement 10.3%



benefit from close observation.

# Gothenburg

SMART CITY RANKING

36

Out of 141



46 out of 118 in 2021

SMART CITY RATING



BBB in 2021

FACTOR RATINGS



STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

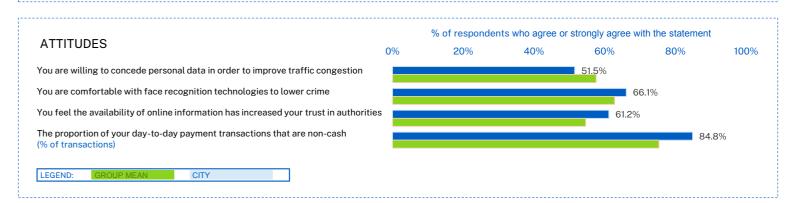
Population HDI 2,071,191 0.944

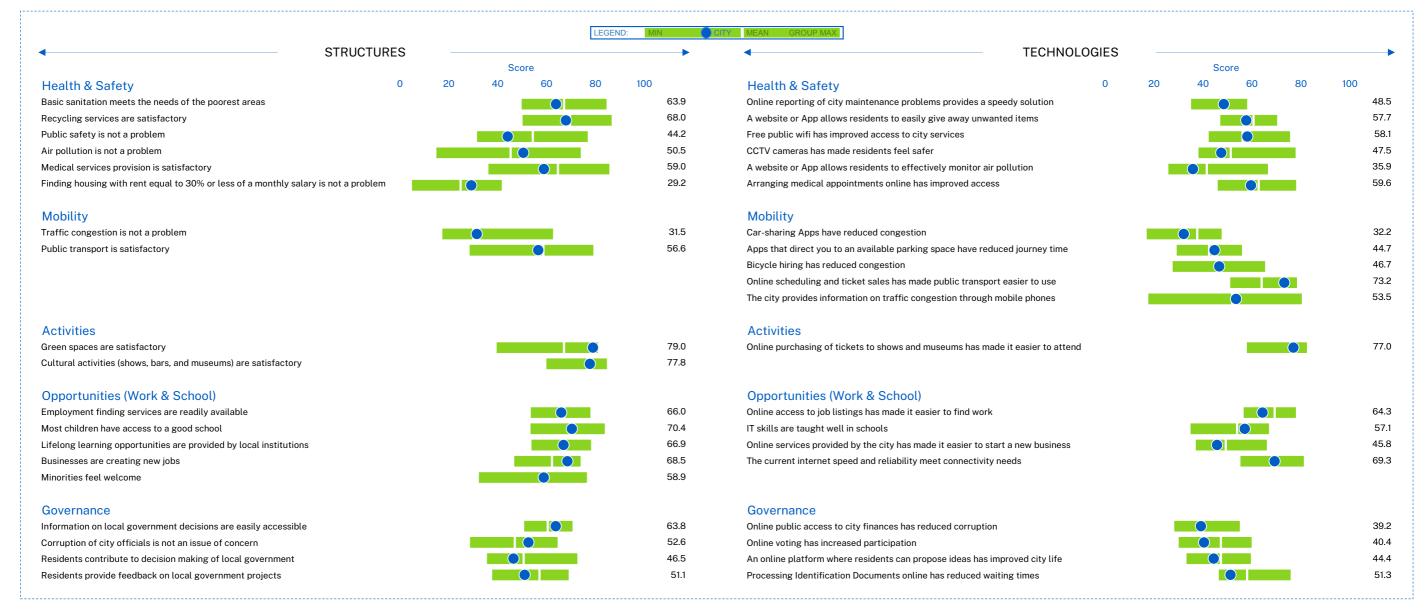
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.937  | 0.945  | 0.942  | 0.947  | +0.005      |
| Life expectancy at birth    | 82.7   | 82.8   | 82.4   | 83.0   | +0.5        |
| Expected years of schooling | 18.8   | 19.5   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.4   | 12.5   | 12.6   | 12.6   | +0.0        |
| GNI per capita (PPP \$)     | 47,955 | 54,508 | 52,359 | 54,489 | +2,130      |

### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 65.2% security were asked to select 5 that they perceived as the health services 62.4% most urgent for their city. This is the total bar. The 38.6% unemployment higher the percentage of responses per area, the public transport 35.7% greater the priority for the city. school education 33.6% road congestion The left-hand, dark blue section of each bar shows green spaces 20.1% social mobility the Alignment, i.e. the proportion of those air pollution 18.0% respondents who also answered the survey on the 17.9% fulfilling employment corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both recycling 13 9% areas explained) means that these areas may basic amenities 11.4% benefit from close observation. citizen engagement





# Guangzhou

SMART CITY RANKING

**71** 

Out of 141



66 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

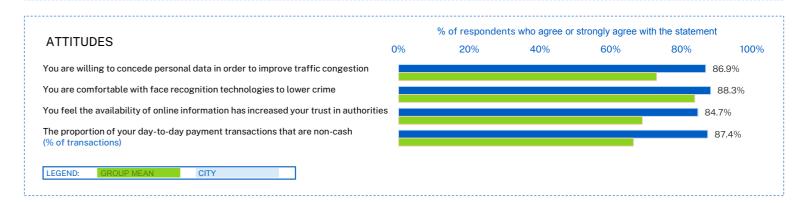
Population HDI 13,964,637 0.799

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16.127 | 16.057 | 16.201 | 17.504 | +1.303      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 62.6% road congestion From a list of 15 indicators, survey respondents 45.2% air pollution were asked to select 5 that they perceived as the affordable housing 40.0% most urgent for their city. This is the total bar. The fulfilling employment 39.3% higher the percentage of responses per area, the health services 37.8% greater the priority for the city. basic amenities 31.0% public transport 27.6% 26.2% The left-hand, dark blue section of each bar shows social mobility school education 26.2% the Alignment, i.e. the proportion of those corruption 25.7% respondents who also answered the survey on the 23.3% green spaces corresponding area by giving it low priority. A 22.7% strong Alignment (i.e. consistency across both 20.4% recycling areas explained) means that these areas may security 17.9% benefit from close observation. citizen engagement 14.4%





# **Guatemala City**

SMART CITY RANKING

141

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

D

**TECHNOLOGIES** 

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

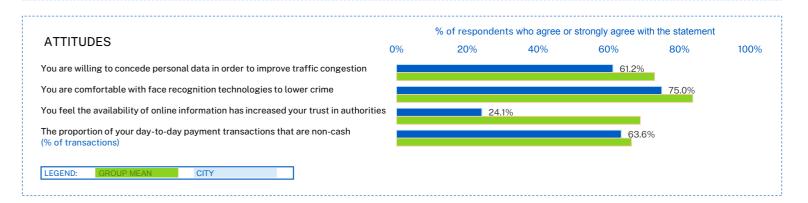
Population HDI 3,036,405 0.722

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.640 | 0.642 | 0.635 | 0.627 | -0.008      |
| Life expectancy at birth    | 72.7  | 73.1  | 71.8  | 69.2  | -2.6        |
| Expected years of schooling | 10.6  | 10.6  | 10.6  | 10.6  | +0.0        |
| Mean years of schooling     | 5.7   | 5.7   | 5.7   | 5.7   | +0.0        |
| GNI per capita (PPP \$)     | 8,289 | 8,494 | 8,241 | 8,723 | +482        |

### % of respondents who chose the Priority Area PRIORITY AREAS 100% security From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the health services 63.8% most urgent for their city. This is the total bar. The higher the percentage of responses per area, the 48.3% road congestion greater the priority for the city. school education fulfilling employment The left-hand, dark blue section of each bar shows 31.0% public transport the Alignment, i.e. the proportion of those affordable housing respondents who also answered the survey on the air pollution 9.5% corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both social mobility 4.3% areas explained) means that these areas may citizen engagement 2.6%



green spaces 2.6%



benefit from close observation.

# Hamburg

SMART CITY RANKING

11

Out of 141



8 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS



STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

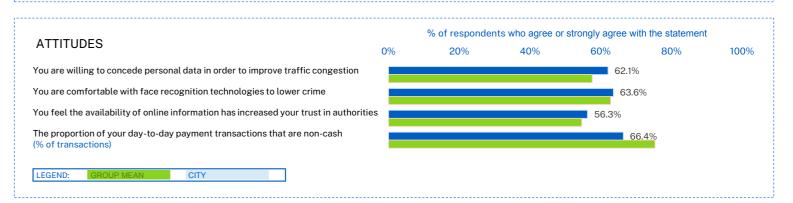
Population HDI 1,852,478 0.972

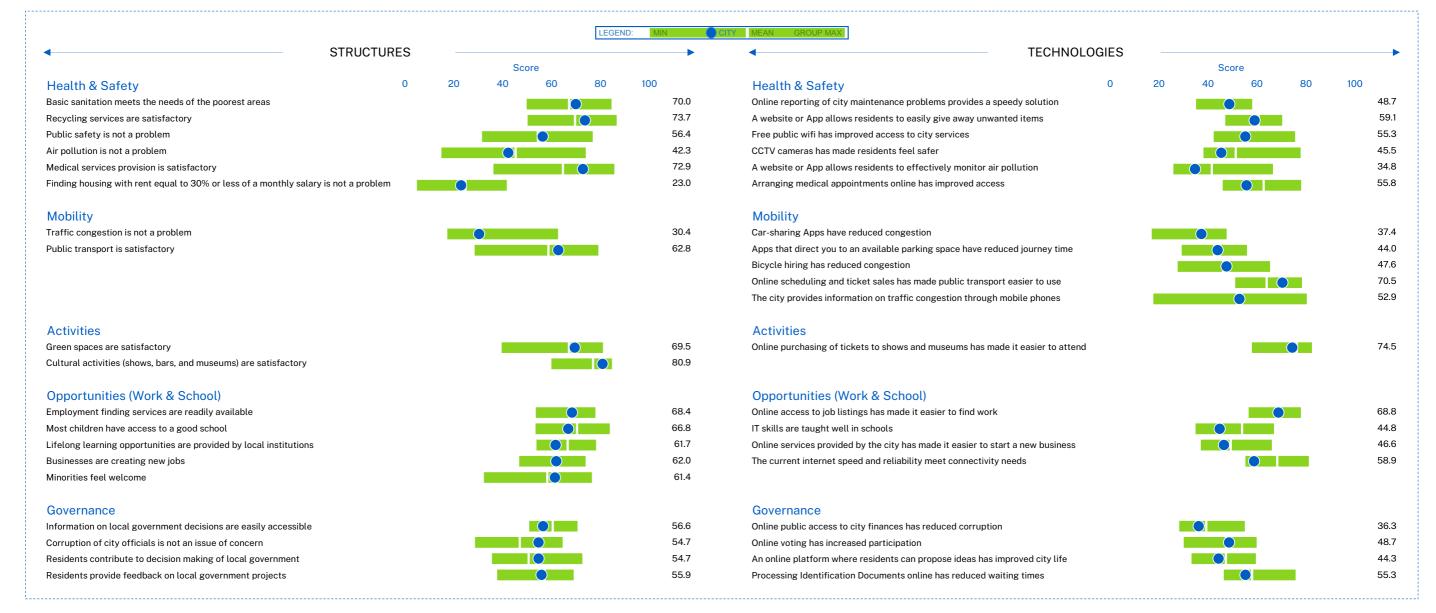
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.939  | 0.947  | 0.944  | 0.942  | -0.002      |
| Life expectancy at birth    | 81.2   | 81.3   | 81.2   | 80.6   | -0.5        |
| Expected years of schooling | 17.1   | 17.0   | 17.0   | 17.0   | +0.0        |
| Mean years of schooling     | 14.1   | 14.2   | 14.1   | 14.1   | +0.0        |
| GNI per capita (PPP \$)     | 46,946 | 55,314 | 53,078 | 54,534 | +1,457      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents road congestion 52.3% were asked to select 5 that they perceived as the 41.5% security most urgent for their city. This is the total bar. The 40.3% unemployment higher the percentage of responses per area, the 33.8% air pollution greater the priority for the city. public transport 29.7% school education 27.6% 20.6% The left-hand, dark blue section of each bar shows recycling 19.3% green spaces the Alignment, i.e. the proportion of those health services 18.3% respondents who also answered the survey on the 17.1% social mobility corresponding area by giving it low priority. A basic amenities 17.1% strong Alignment (i.e. consistency across both citizen engagement 16.0% areas explained) means that these areas may corruption 14.1% benefit from close observation. fulfilling employment 13.7%





# Hangzhou

SMART CITY RANKING

**70** 

Out of 141



63 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

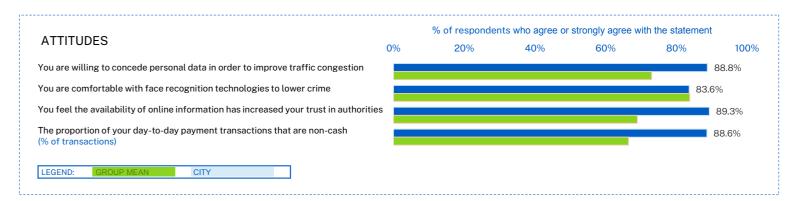
Population HDI 8,044,878 0.801

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% road congestion From a list of 15 indicators, survey respondents 47.5% affordable housing were asked to select 5 that they perceived as the air pollution 41.5% most urgent for their city. This is the total bar. The fulfilling employment 39.6% higher the percentage of responses per area, the health services 39.6% greater the priority for the city. social mobility 30.3% basic amenities 29.2% 28.3% The left-hand, dark blue section of each bar shows corruption security 25.4% the Alignment, i.e. the proportion of those school education 23.1% respondents who also answered the survey on the public transport 21.5% corresponding area by giving it low priority. A 20.8% recycling strong Alignment (i.e. consistency across both 20.1% green spaces areas explained) means that these areas may unemployment 17.5% benefit from close observation. citizen engagement 14.7%







100

Out of 141



89 out of 118 in 2021

SMART CITY RATING

CCC

CC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

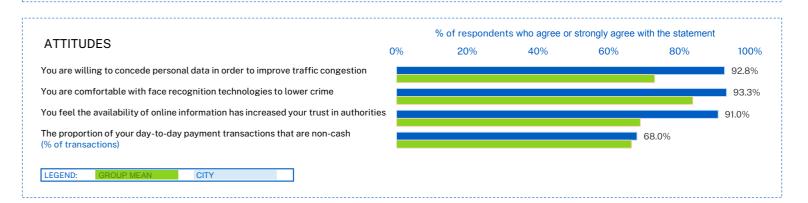
Population HDI 5,067,352 0.744

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.693 | 0.704 | 0.710 | 0.703 | -0.007      |
| Life expectancy at birth    | 75.3  | 75.4  | 75.4  | 73.6  | -1.8        |
| Expected years of schooling | 12.7  | 12.7  | 13.0  | 13.0  | +0.0        |
| Mean years of schooling     | 8.2   | 8.3   | 8.4   | 8.4   | +0.0        |
| GNI per capita (PPP \$)     | 6,220 | 7,433 | 7,742 | 7,867 | +125        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 77.0% air pollution From a list of 15 indicators, survey respondents road congestion 68.7% were asked to select 5 that they perceived as the basic amenities 44.7% most urgent for their city. This is the total bar. The 43.6% corruption higher the percentage of responses per area, the affordable housing 37.3% greater the priority for the city. 36.8% green spaces public transport 33.7% health services 28.3% The left-hand, dark blue section of each bar shows security 25.2% the Alignment, i.e. the proportion of those recycling 19 4% respondents who also answered the survey on the 18.7% unemployment corresponding area by giving it low priority. A fulfilling employment strong Alignment (i.e. consistency across both school education 12.6% areas explained) means that these areas may social mobility 6.9% benefit from close observation. citizen engagement 5.8%





# Hanover

SMART CITY RANKING

**57** 

Out of 141



53 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

### BACKGROUND INFORMATION

## City

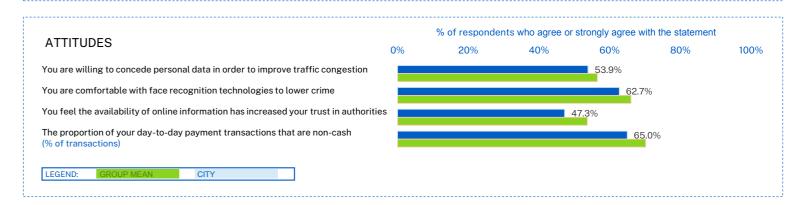
Population HDI 8,003,421 0.930

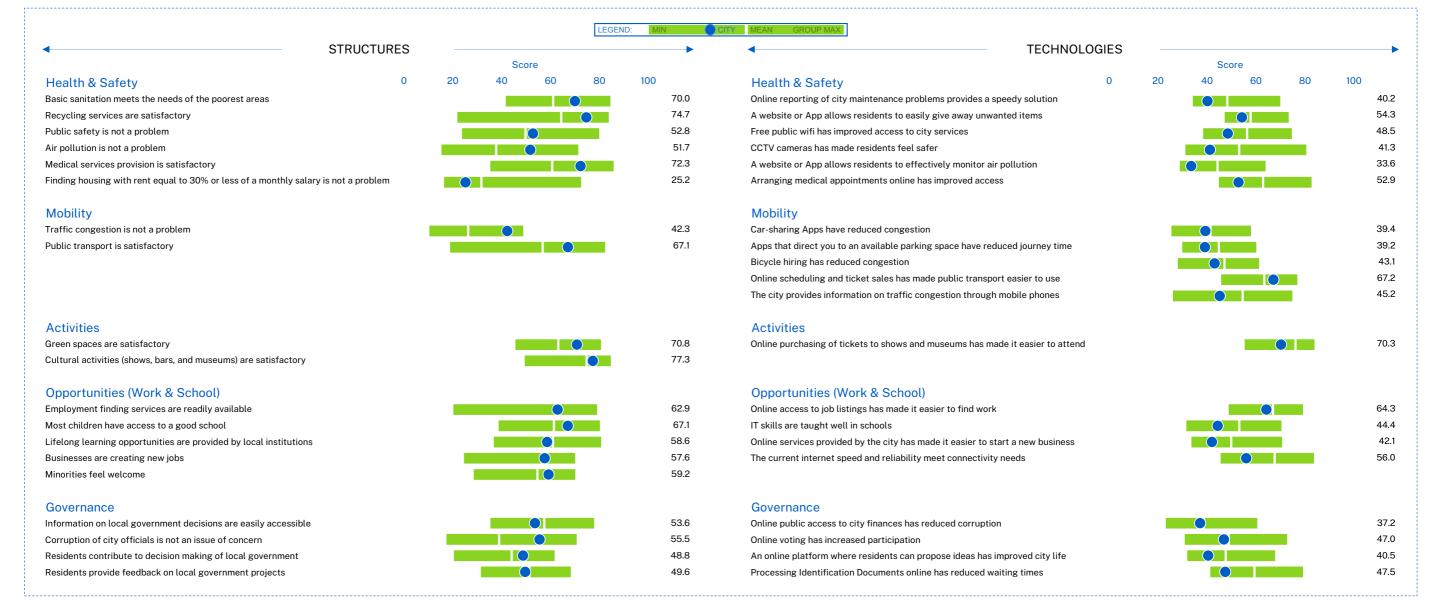
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.939  | 0.947  | 0.944  | 0.942  | -0.002      |
| Life expectancy at birth    | 81.2   | 81.3   | 81.2   | 80.6   | -0.5        |
| Expected years of schooling | 17.1   | 17.0   | 17.0   | 17.0   | +0.0        |
| Mean years of schooling     | 14.1   | 14.2   | 14.1   | 14.1   | +0.0        |
| GNI per capita (PPP \$)     | 46,946 | 55,314 | 53,078 | 54,534 | +1,457      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 72.9% From a list of 15 indicators, survey respondents 49.9% security were asked to select 5 that they perceived as the road congestion 39.9% most urgent for their city. This is the total bar. The 36.1% unemployment higher the percentage of responses per area, the 29.3% school education greater the priority for the city. public transport 26.9% citizen engagement 24.5% recycling 22.4% The left-hand, dark blue section of each bar shows health services 21.9% the Alignment, i.e. the proportion of those social mobility 21.1% respondents who also answered the survey on the 21.0% air pollution corresponding area by giving it low priority. A 17.4% green spaces strong Alignment (i.e. consistency across both hasic amenities 17.3% areas explained) means that these areas may fulfilling employment 17.2% benefit from close observation. corruption 13.4%





# Helsinki

SMART CITY RANKING

8

Out of 141



9 out of 118 in 2021

SMART CITY RATING



AAA in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

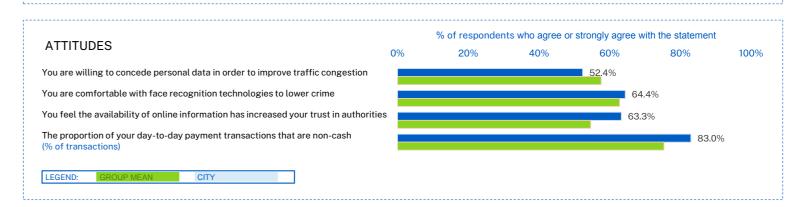
Population HDI 1,702,678 0.960

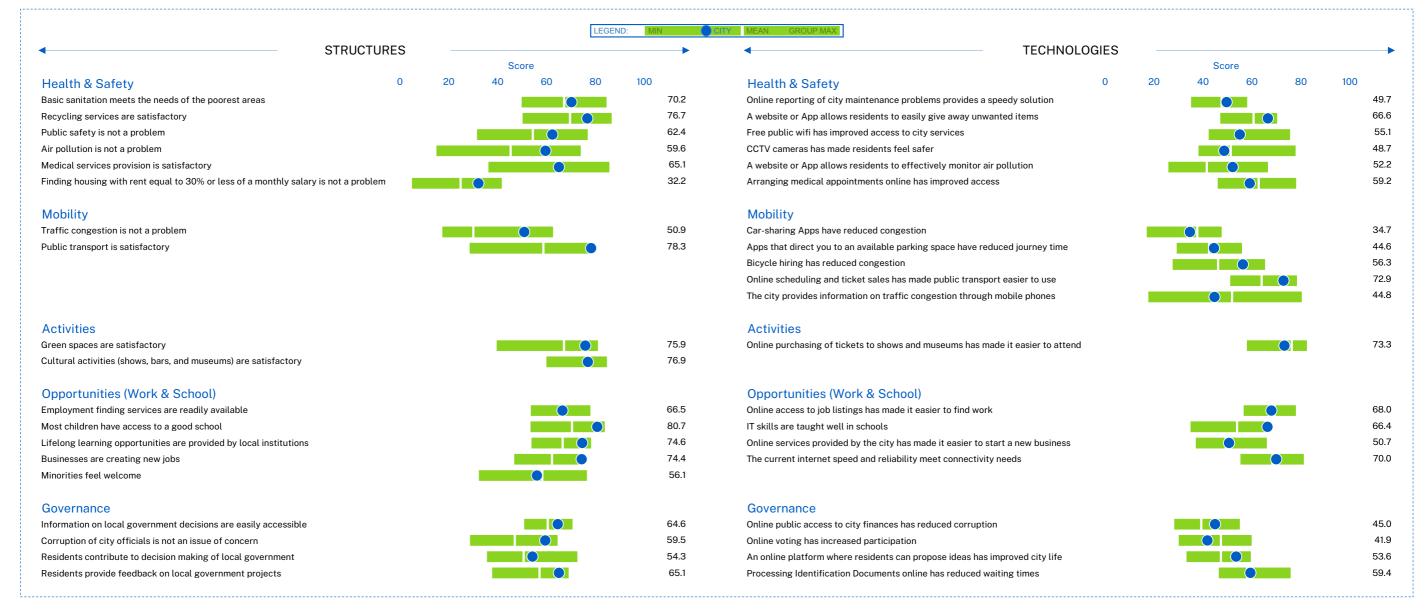
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.925  | 0.938  | 0.938  | 0.940  | +0.002      |
| Life expectancy at birth    | 81.7   | 81.9   | 81.9   | 82.0   | +0.2        |
| Expected years of schooling | 19.3   | 19.4   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.4   | 12.8   | 12.9   | 12.9   | +0.0        |
| GNI per capita (PPP \$)     | 41,779 | 48,511 | 47,946 | 49,452 | +1,506      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% 60.8% health services From a list of 15 indicators, survey respondents affordable housing 54.8% were asked to select 5 that they perceived as the 50.3% security most urgent for their city. This is the total bar. The 44.0% public transport higher the percentage of responses per area, the 35.5% unemplovment greater the priority for the city. recycling 31.7% basic amenities 26.2% 24.8% The left-hand, dark blue section of each bar shows green spaces road congestion 24.8% the Alignment, i.e. the proportion of those school education 24.5% respondents who also answered the survey on the 24.4% fulfilling employment corresponding area by giving it low priority. A social mobility 20.4% strong Alignment (i.e. consistency across both air pollution 16.2% areas explained) means that these areas may citizen engagement 15.4% benefit from close observation. corruption 7.5%





# Ho Chi Minh City

SMART CITY RANKING

103

Out of 141



93 out of 118 in 2021

SMART CITY RATING

CCC

CC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

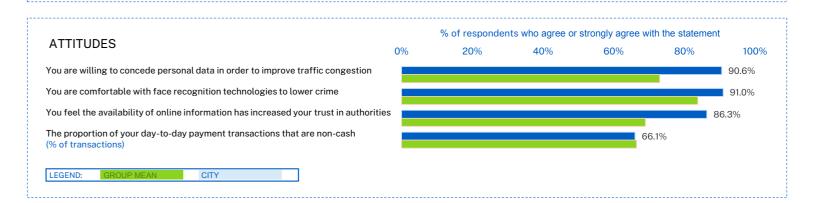
Population HDI 9,077,158 0.714

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.693 | 0.704 | 0.710 | 0.703 | -0.007      |
| Life expectancy at birth    | 75.3  | 75.4  | 75.4  | 73.6  | -1.8        |
| Expected years of schooling | 12.7  | 12.7  | 13.0  | 13.0  | +0.0        |
| Mean years of schooling     | 8.2   | 8.3   | 8.4   | 8.4   | +0.0        |
| GNI per capita (PPP \$)     | 6,220 | 7,433 | 7,742 | 7,867 | +125        |

### % of respondents who chose the Priority Area PRIORITY AREAS 100% road congestion From a list of 15 indicators, survey respondents 58.0% were asked to select 5 that they perceived as the 45.2% security most urgent for their city. This is the total bar. The 45.2% basic amenities higher the percentage of responses per area, the affordable housing 41.0% greater the priority for the city. 33.7% green spaces 33.0% 32.7% The left-hand, dark blue section of each bar shows health services unemployment the Alignment, i.e. the proportion of those public transport 30.0% respondents who also answered the survey on the fulfilling employment corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both school education areas explained) means that these areas may citizen engagement 7.2% benefit from close observation. social mobility 5.9%





# Hong Kong

SMART CITY RANKING

19

Out of 141



33 out of 118 in 2021

SMART CITY RATING

AA

A in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

AAA

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

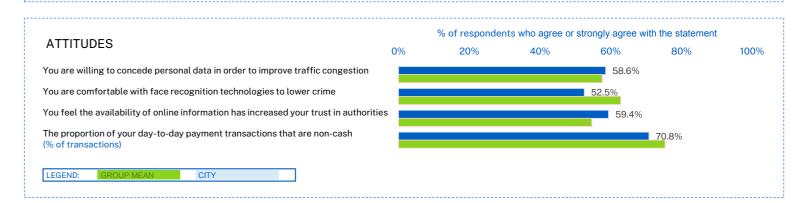
Population HDI (2019) 7,413,070 0.949

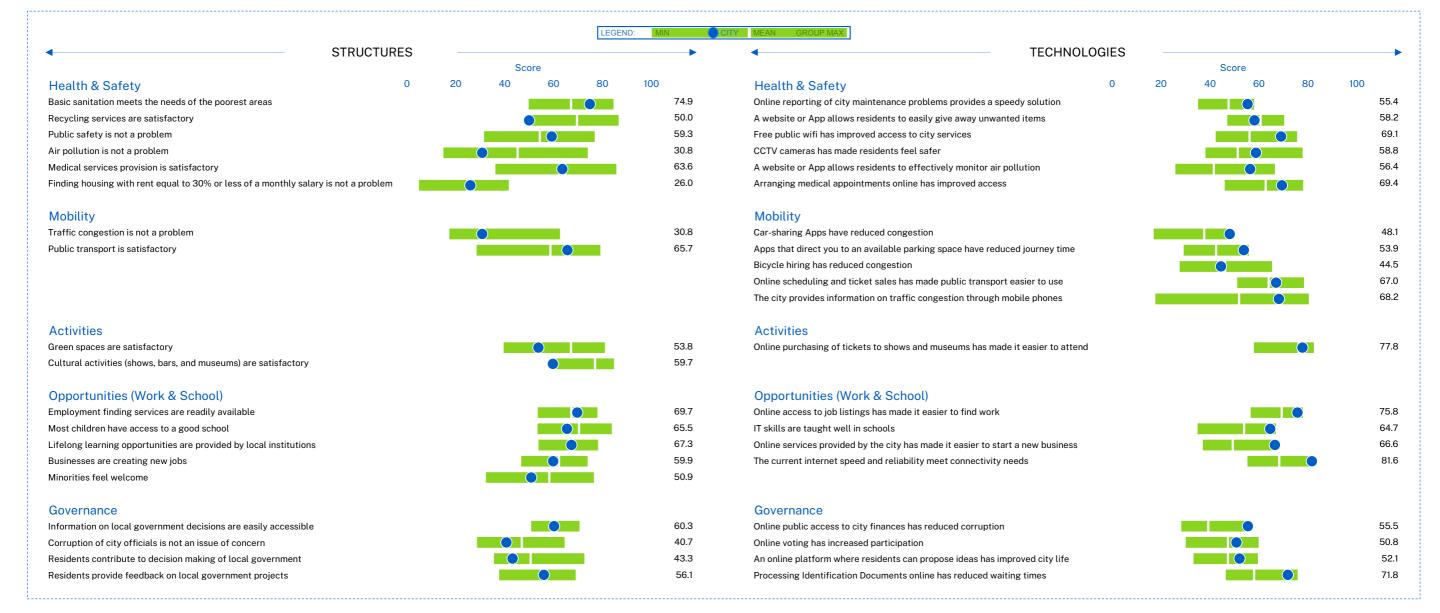
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.939  | 0.949  | NA     | NA     | NA          |
| Life expectancy at birth    | 84.7   | 84.9   | NA     | NA     | NA          |
| Expected years of schooling | 16.5   | 16.9   | NA     | NA     | NA          |
| Mean years of schooling     | 12.0   | 12.3   | NA     | NA     | NA          |
| GNI per capita (PPP \$)     | 60,221 | 62,985 | 58,644 | 62,607 | +3,963      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 44.9% health services were asked to select 5 that they perceived as the 35.1% corruption most urgent for their city. This is the total bar. The 33.3% citizen engagement higher the percentage of responses per area, the 32.2% air pollution greater the priority for the city. unemployment 30.9% fulfilling employment 30.2% The left-hand, dark blue section of each bar shows road congestion 29.9% 29.9% security the Alignment, i.e. the proportion of those school education 26.5% respondents who also answered the survey on the social mobility 26.1% corresponding area by giving it low priority. A 23.6% recycling strong Alignment (i.e. consistency across both basic amenities 19.9% areas explained) means that these areas may public transport 15.2% benefit from close observation. green spaces





# Hyderabad

SMART CITY RANKING

116

Out of 141



101 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

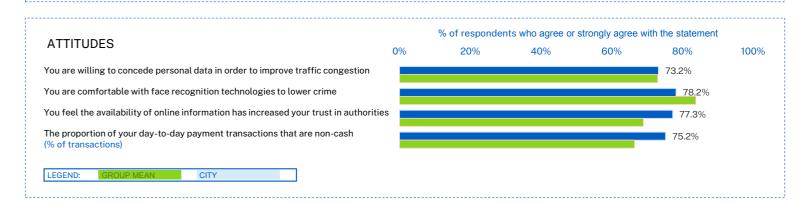
Population HDI 10,534,418 0.647

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.647 | 0.645 | 0.642 | 0.633 | -0.009      |
| Life expectancy at birth    | 69.4  | 69.7  | 70.2  | 67.2  | -2.9        |
| Expected years of schooling | 12.3  | 12.2  | 11.9  | 11.9  | +0.0        |
| Mean years of schooling     | 6.5   | 6.5   | 6.7   | 6.7   | +0.0        |
| GNI per capita (PPP \$)     | 6,829 | 6,681 | 6,107 | 6,590 | +482        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% air pollution From a list of 15 indicators, survey respondents 43.0% basic amenities were asked to select 5 that they perceived as the corruption 40.6% most urgent for their city. This is the total bar. The health services 39.5% higher the percentage of responses per area, the unemployment 39.4% greater the priority for the city. road congestion 38.7% fulfilling employment 36.2% 33.4% The left-hand, dark blue section of each bar shows security 32.7% green spaces the Alignment, i.e. the proportion of those affordable housing 32.6% respondents who also answered the survey on the 26.6% recycling corresponding area by giving it low priority. A public transport 23.0% strong Alignment (i.e. consistency across both school education 17 1% areas explained) means that these areas may citizen engagement 11.5%



social mobility



benefit from close observation.

# **(Islamabad**

SMART CITY RANKING

120

Out of 141

not out of 118 in 2021

SMART CITY RATING

CC

not in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

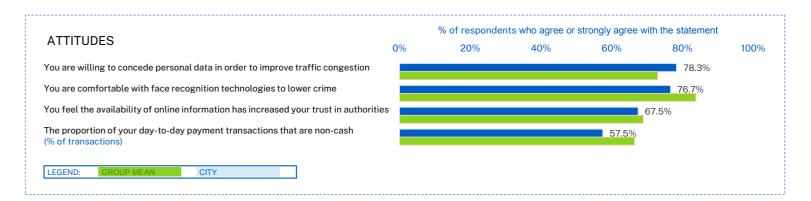
Population HDI 1,009,003 0.659

(UN Data)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.545 | 0.546 | 0.543 | 0.544 | +0.001      |
| Life expectancy at birth    | 66.5  | 66.8  | 66.3  | 66.1  | -0.2        |
| Expected years of schooling | 8.3   | 8.7   | 8.7   | 8.7   | +0.0        |
| Mean years of schooling     | 4.8   | 4.5   | 4.5   | 4.5   | +0.0        |
| GNI per capita (PPP \$)     | 4,658 | 4,604 | 4,467 | 4,624 | +156        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 55.8% basic amenities were asked to select 5 that they perceived as the 52.5% unemployment most urgent for their city. This is the total bar. The 43.3% corruption higher the percentage of responses per area, the 40.0% security greater the priority for the city. health services 35.0% public transport 32.5% fulfilling employment 30.0% The left-hand, dark blue section of each bar shows school education the Alignment, i.e. the proportion of those air pollution 23.3% respondents who also answered the survey on the 20.8% social mobility corresponding area by giving it low priority. A recycling 18.3% strong Alignment (i.e. consistency across both 16 7% road congestion areas explained) means that these areas may green spaces 15.0%



citizen engagement



benefit from close observation.

# **Istanbul**

SMART CITY RANKING

107

Out of 141



88 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

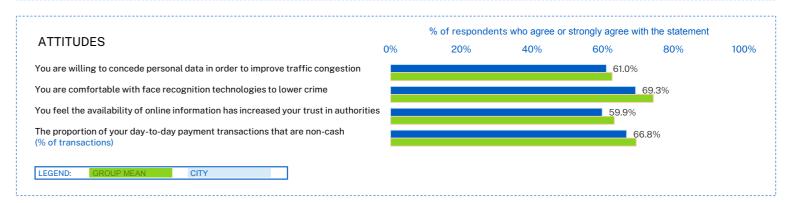
Population HDI 15,462,452 0.867

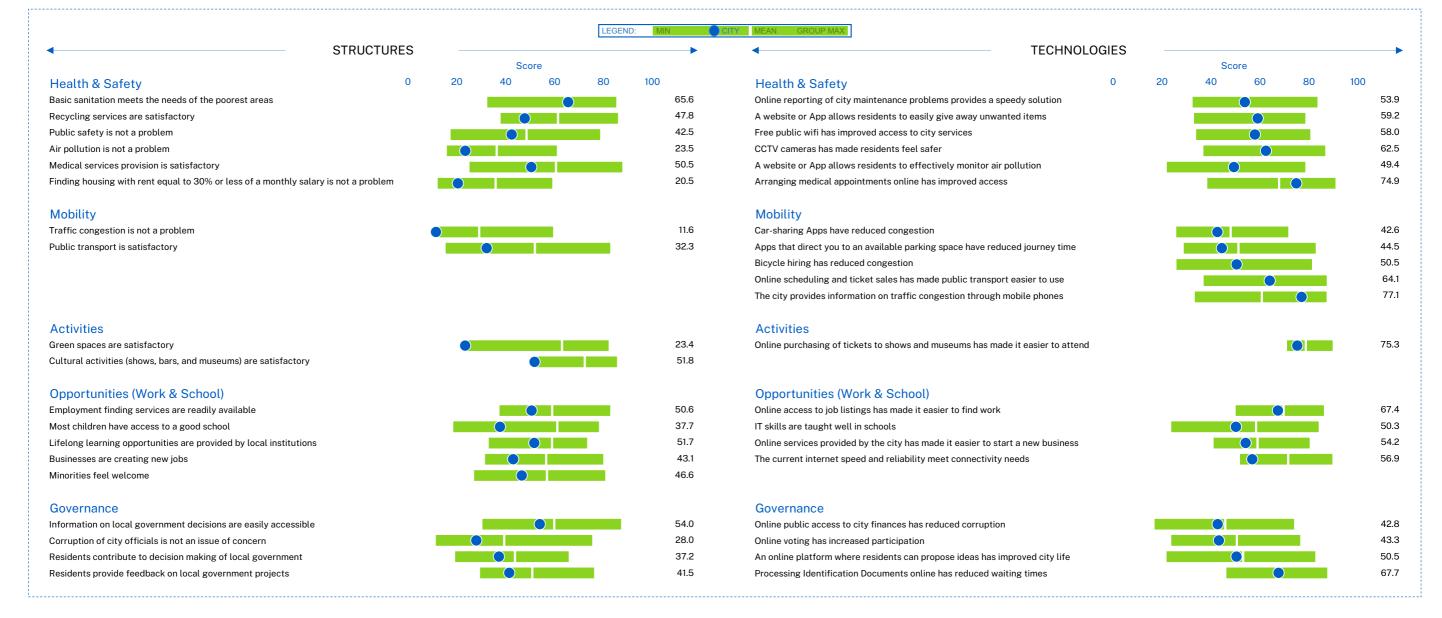
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.807  | 0.820  | 0.833  | 0.838  | +0.005      |
| Life expectancy at birth    | 77.4   | 77.7   | 75.9   | 76.0   | +0.2        |
| Expected years of schooling | 16.4   | 16.6   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 7.7    | 8.1    | 8.6    | 8.6    | +0.0        |
| GNI per capita (PPP \$)     | 24,905 | 27,701 | 28,317 | 31,033 | +2,715      |

### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents road congestion 67.3% were asked to select 5 that they perceived as the 45.9% unemployment most urgent for their city. This is the total bar. The 42.0% green spaces higher the percentage of responses per area, the 41.5% security greater the priority for the city. 33.9% corruption air pollution 32.9% fulfilling employment 28.8% The left-hand, dark blue section of each bar shows basic amenities 28.2% the Alignment, i.e. the proportion of those health services 25.1% respondents who also answered the survey on the 25.0% public transport corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both 15.0% school education areas explained) means that these areas may social mobility 5.4% benefit from close observation. citizen engagement 4.7%





# Jakarta

SMART CITY RANKING

102

Out of 141



92 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

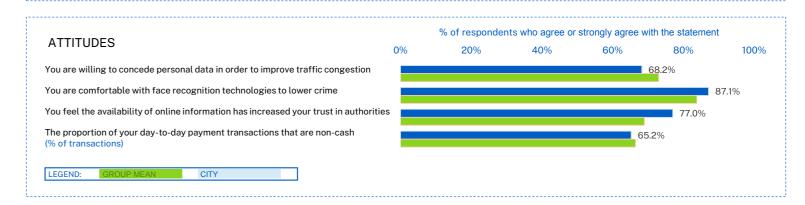
Population HDI 10,562,088 0.759

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.707  | 0.718  | 0.709  | 0.705  | -0.004      |
| Life expectancy at birth    | 71.5   | 71.7   | 68.8   | 67.6   | -1.2        |
| Expected years of schooling | 12.9   | 13.6   | 13.8   | 13.8   | +0.0        |
| Mean years of schooling     | 8.0    | 8.2    | 8.6    | 8.6    | +0.0        |
| GNI per capita (PPP \$)     | 11,256 | 11,459 | 11,142 | 11,466 | +325        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 66.2% air pollution From a list of 15 indicators, survey respondents road congestion 65.2% were asked to select 5 that they perceived as the 49.5% corruption most urgent for their city. This is the total bar. The 48.8% basic amenities higher the percentage of responses per area, the 48.0% unemployment greater the priority for the city. 39.1% security health services 32.9% 29.7% The left-hand, dark blue section of each bar shows green spaces fulfilling employment 24.8% the Alignment, i.e. the proportion of those affordable housing 23.3% respondents who also answered the survey on the 19.4% public transport corresponding area by giving it low priority. A recycling 13.0% strong Alignment (i.e. consistency across both 12.8% school education areas explained) means that these areas may social mobility 6.4% benefit from close observation. citizen engagement 5.5%





# **J**eddah

SMART CITY RANKING

**56** 

Out of 141

not out of 118 in 2021

SMART CITY RATING

B

not in 2021

FACTOR RATINGS

B

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

Population HDI 478,074 0.871

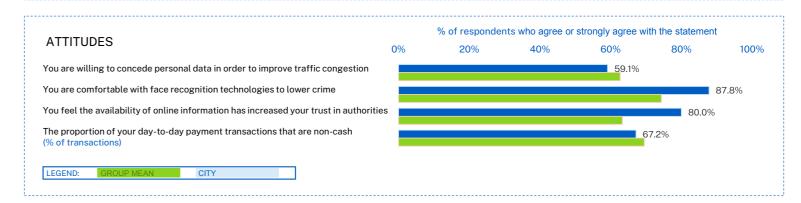
(UN World Urbanisation Prospects 2022

estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.865 | 0.873 | 0.870 | 0.875 | +0.005      |
| Life expectancy at birth    | 77.2  | 77.3  | 76.2  | 76.9  | +0.7        |
| Expected years of schooling | 15.7  | 16.0  | 16.1  | 16.1  | +0.0        |
| Mean years of schooling     | 10.6  | 8.3   | 8.3   | 8.3   | +0.0        |
| GNI per capita (PPP \$)     | 5,072 | 5,307 | 5,601 | 5,745 | +143        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 69.6% From a list of 15 indicators, survey respondents 58.3% road congestion were asked to select 5 that they perceived as the unemployment 38.3% most urgent for their city. This is the total bar. The 35.7% green spaces higher the percentage of responses per area, the air pollution 33.9% greater the priority for the city. basic amenities 33.0% fulfilling employment 26.1% public transport 26.1% The left-hand, dark blue section of each bar shows health services 26.1% the Alignment, i.e. the proportion of those security 24.3% respondents who also answered the survey on the corruption 20.9% corresponding area by giving it low priority. A recycling 20.0% strong Alignment (i.e. consistency across both school education 17 4% areas explained) means that these areas may social mobility 10.4% benefit from close observation. citizen engagement 7.8%







81

Out of 141



72 out of 118 in 2021

SMART CITY RATING

BB

B in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

Population HDI 2,910,875 0.921

(Eurostat)

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI



53,078

2018

0.939

81.2

17.1

14.1

55.314

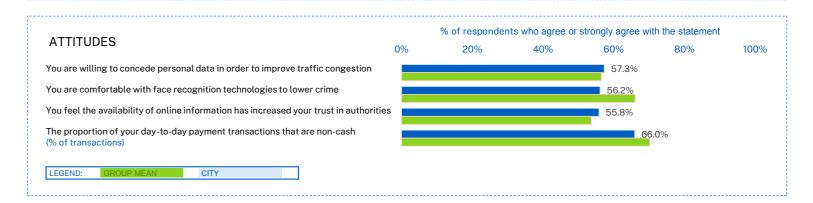
46,946

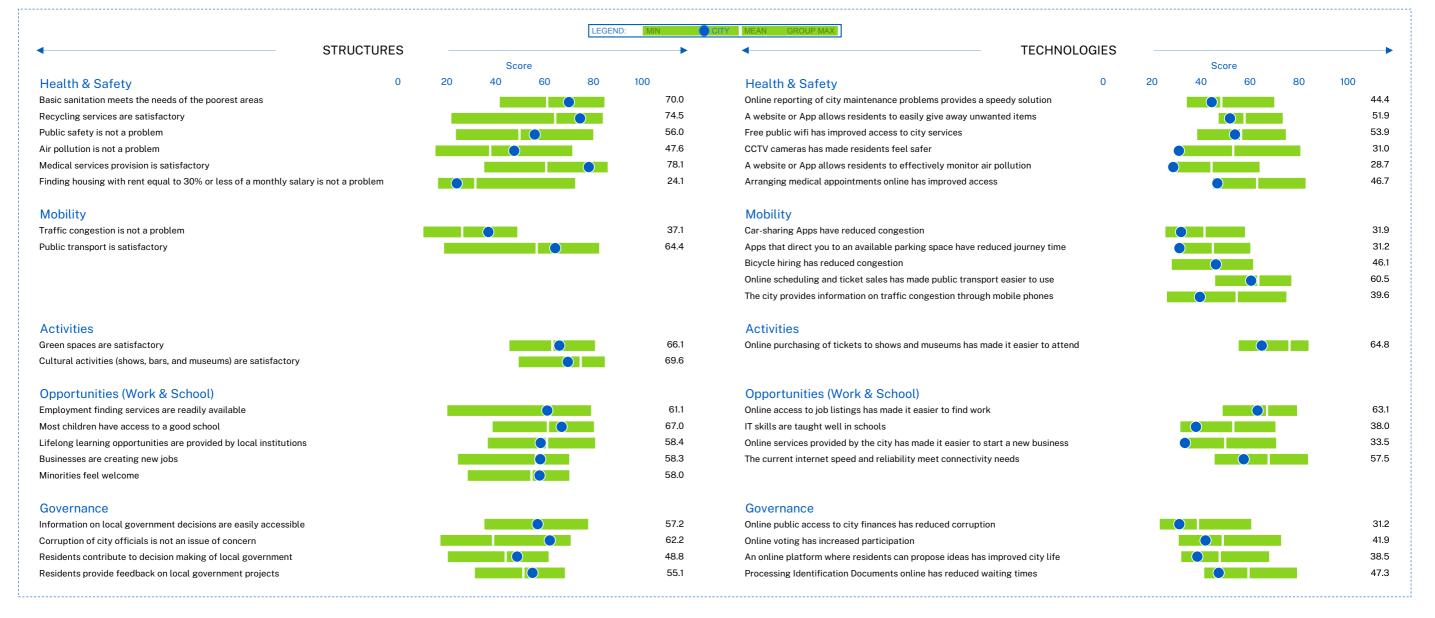
| 9 | 1 yr change | 2021  | 2020  | 2019  |
|---|-------------|-------|-------|-------|
| 2 | -0.002      | 0.942 | 0.944 | 0.947 |
| 5 | -0.5        | 80.6  | 81.2  | 81.3  |
| 0 | +0.0        | 17.0  | 17.0  | 17.0  |
| 0 | +0.0        | 14.1  | 14.1  | 14.2  |

54.534

+1,457

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents road congestion 47.7% were asked to select 5 that they perceived as the 41.8% security most urgent for their city. This is the total bar. The 35.8% air pollution higher the percentage of responses per area, the 31.3% unemployment greater the priority for the city. school education 30.5% public transport 26.2% 24.0% The left-hand, dark blue section of each bar shows citizen engagement social mobility 20.7% the Alignment, i.e. the proportion of those green spaces 20.3% respondents who also answered the survey on the 19.7% recycling corresponding area by giving it low priority. A 17.0% health services strong Alignment (i.e. consistency across both fulfilling employment 15.7% areas explained) means that these areas may basic amenities 14.3% benefit from close observation. corruption 10.5%







**79** 

Out of 141



76 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

B

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

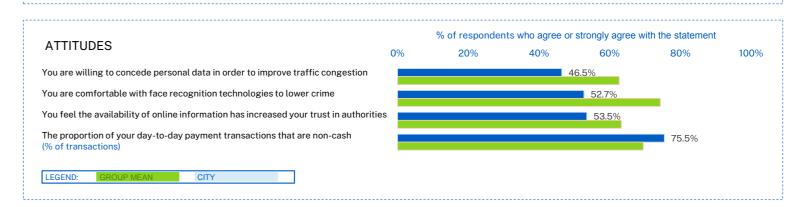
Population HDI 3,372,763 0.888

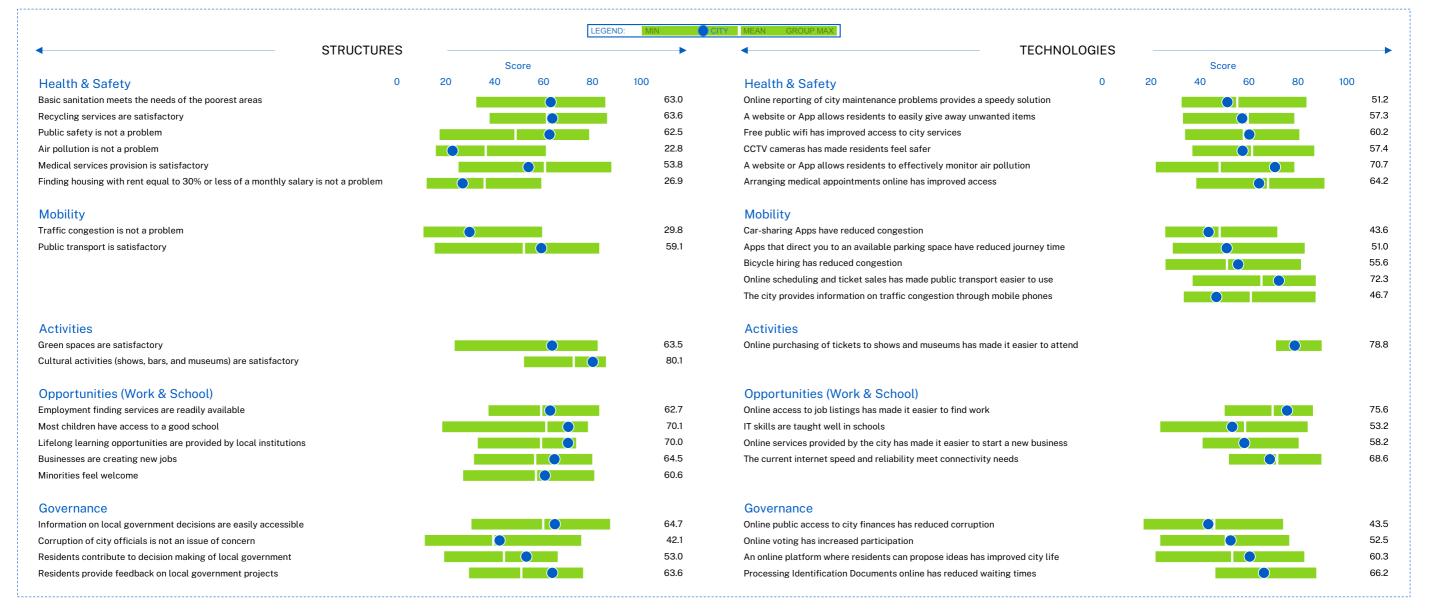
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.872  | 0.880  | 0.876  | 0.876  | +0.000      |
| Life expectancy at birth    | 78.5   | 78.7   | 76.9   | 76.5   | -0.5        |
| Expected years of schooling | 16.4   | 16.3   | 16.0   | 16.0   | +0.0        |
| Mean years of schooling     | 12.3   | 12.5   | 13.2   | 13.2   | +0.0        |
| GNI per capita (PPP \$)     | 27,626 | 31,623 | 31,164 | 33,034 | +1,869      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 63.5% air pollution From a list of 15 indicators, survey respondents affordable housing 59.9% were asked to select 5 that they perceived as the road congestion 44.8% most urgent for their city. This is the total bar. The 41.4% security higher the percentage of responses per area, the green spaces 36.6% greater the priority for the city. fulfilling employment 35.5% health services 34.1% 32.3% The left-hand, dark blue section of each bar shows basic amenities public transport 31.8% the Alignment, i.e. the proportion of those recycling 27.4% respondents who also answered the survey on the 15.2% corruption corresponding area by giving it low priority. A school education 14.5% strong Alignment (i.e. consistency across both 13 7% unemployment areas explained) means that these areas may social mobility 13.3% benefit from close observation. citizen engagement





# Kuala Lumpur

SMART CITY RANKING

89

Out of 141



80 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

B

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

Population HDI 1,853,918 0.858

(UN Data)

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI



10.7

25,940

2018

76.0

13.5

10.2

27,227

2019

0.810

76.2

13.7

10.4

27.534

| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.806 | 0.803 | -0.003      |
| 75.9  | 74.9  | -1.1        |
| 13.3  | 13.3  | +0.0        |

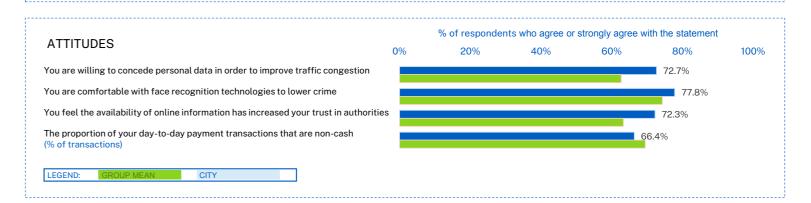
10.7

26,658

+0.0

+717

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 59.8% From a list of 15 indicators, survey respondents 57.3% road congestion were asked to select 5 that they perceived as the 56.6% corruption most urgent for their city. This is the total bar. The 43.6% higher the percentage of responses per area, the security 39.3% greater the priority for the city. air pollution 32.7% health services 31.9% 28.0% The left-hand, dark blue section of each bar shows public transport 27.9% fulfilling employment the Alignment, i.e. the proportion of those basic amenities 26.8% respondents who also answered the survey on the recycling 21.6% corresponding area by giving it low priority. A 20.4% green spaces strong Alignment (i.e. consistency across both school education 16.8% areas explained) means that these areas may social mobility 11.9%



citizen engagement 9.4%



benefit from close observation.



132

Out of 141



116 out of 118 in 2021

SMART CITY RATING

D

D in 2021

FACTOR RATINGS



STRUCTURES

C

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

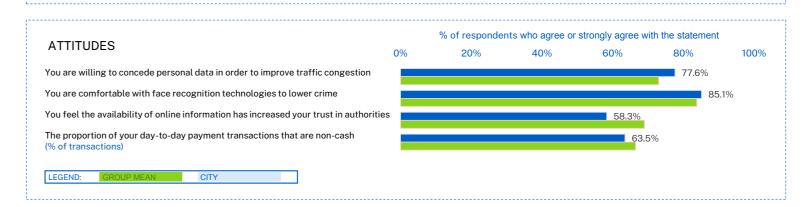
Population HDI 15,387,639 0.681

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.534 | 0.539 | 0.535 | 0.535 | +0.000      |
| Life expectancy at birth    | 54.3  | 54.7  | 52.9  | 52.7  | -0.2        |
| Expected years of schooling | 9.7   | 10.0  | 10.1  | 10.1  | +0.0        |
| Mean years of schooling     | 6.5   | 6.7   | 7.2   | 7.2   | +0.0        |
| GNI per capita (PPP \$)     | 5,086 | 4,910 | 4,740 | 4,790 | +51         |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security 71.5% From a list of 15 indicators, survey respondents affordable housing 64.7% were asked to select 5 that they perceived as the unemployment 56.7% most urgent for their city. This is the total bar. The 55.0% corruption higher the percentage of responses per area, the 53.2% health services greater the priority for the city. road congestion 47.2% basic amenities 37.1% fulfilling employment 27.1% The left-hand, dark blue section of each bar shows school education the Alignment, i.e. the proportion of those public transport 16.0% respondents who also answered the survey on the 15.1% air pollution corresponding area by giving it low priority. A citizen engagement 8.2% strong Alignment (i.e. consistency across both recycling 6.5% areas explained) means that these areas may green spaces 5.7% benefit from close observation. social mobility 4.7%





# Lausanne

SMART CITY RANKING

5

Out of 141



4 out of 118 in 2021

SMART CITY RATING



AAA in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

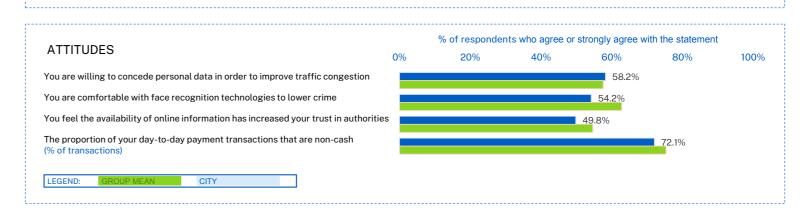
Population HDI 1,669,608 0.966

(Eurostat)



| Country<br>HDI              | 2018<br>0.946 | 2019<br>0.955 | 2020<br>0.956 | 2021<br>0.962 | 1 yr change<br>+0.006 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 83.6          | 83.8          | 83.1          | 84.0          | +0.9                  |
| Expected years of schooling | 16.2          | 16.3          | 16.5          | 16.5          | +0.0                  |
| Mean years of schooling     | 13.4          | 13.4          | 13.9          | 13.9          | +0.0                  |
| GNI per capita (PPP \$)     | 59,375        | 69,394        | 65,011        | 66,933        | +1,922                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 80% 100% affordable housing 78.3% From a list of 15 indicators, survey respondents road congestion 56.6% were asked to select 5 that they perceived as the 43.4% security most urgent for their city. This is the total bar. The 30.6% unemployment higher the percentage of responses per area, the 29.0% air pollution greater the priority for the city. health services 24.1% recycling 21.6% 21.0% The left-hand, dark blue section of each bar shows corruption 20.5% green spaces the Alignment, i.e. the proportion of those fulfilling employment 20.5% respondents who also answered the survey on the 20.4% public transport corresponding area by giving it low priority. A social mobility 16.3% strong Alignment (i.e. consistency across both hasic amenities 16.3% areas explained) means that these areas may citizen engagement 13.8% benefit from close observation. school education 11.4%





# Leeds

SMART CITY RANKING

**76** 

Out of 141



64 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

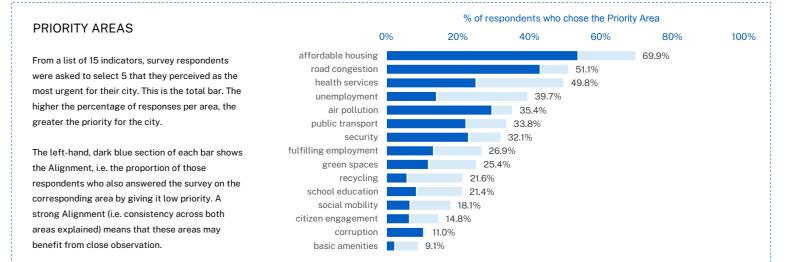
Population HDI 2,324,560 0.908

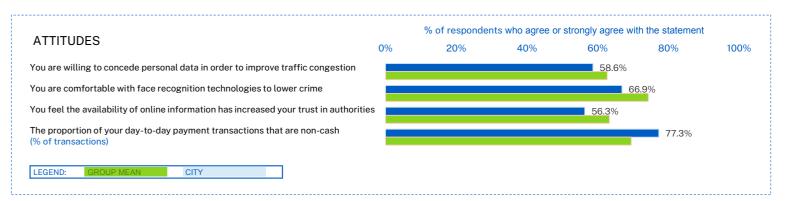
(Eurostat)

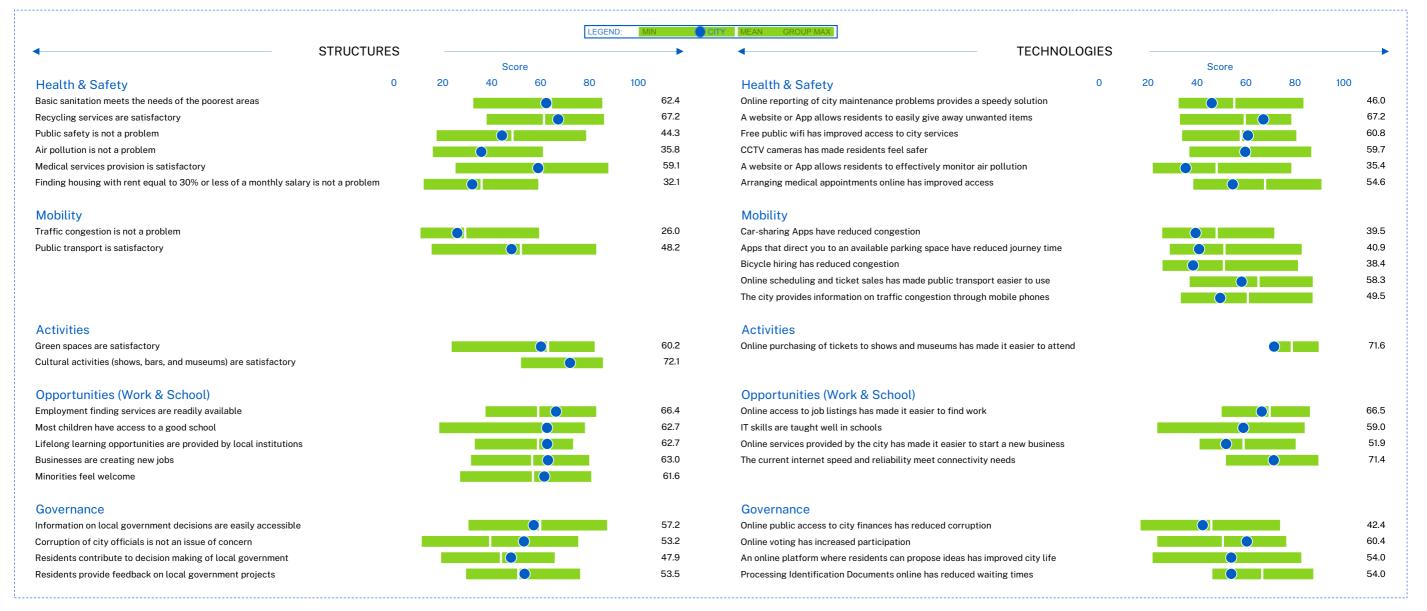


| Map tiles by S | Stamen Design | CC BY 3.0 | Map Data @ | ∂ OpenStreet |
|----------------|---------------|-----------|------------|--------------|
|----------------|---------------|-----------|------------|--------------|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.932  | 0.924  | 0.929  | +0.005      |
| Life expectancy at birth    | 81.2   | 81.3   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.4   | 17.5   | 17.3   | 17.3   | +0.0        |
| Mean years of schooling     | 13.0   | 13.2   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 39,507 | 46,071 | 42,375 | 45,225 | +2,850      |
|                             |        |        |        |        |             |









84

Out of 141



82 out of 118 in 2021

SMART CITY RATING

CCC

CC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

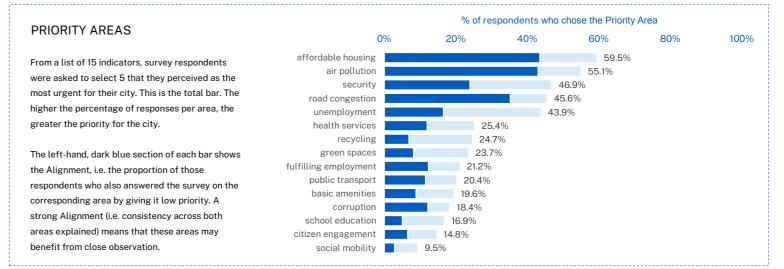
Population HDI 2,607,879 0.880

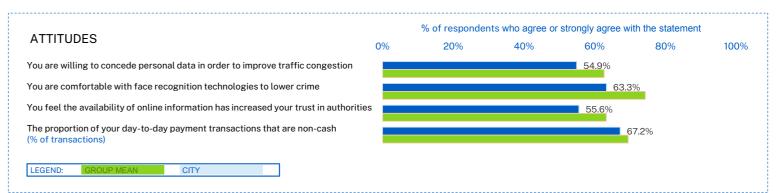
(Eurostat)



| mup | inco by | Ottomon | 5001511 | - | υ. | 0.0 | mup | DULU | _ | openone | 001 |
|-----|---------|---------|---------|---|----|-----|-----|------|---|---------|-----|
|     |         |         |         |   |    |     |     |      |   |         |     |
|     |         |         |         |   |    |     |     |      |   |         |     |
|     |         |         |         |   |    |     |     |      |   |         |     |

| Country                     | 2018<br>0.891 | 2019   | 2020<br>0.898 | 2021   | 1 yr change<br>+0.005 |
|-----------------------------|---------------|--------|---------------|--------|-----------------------|
| Life expectancy at birth    | 82.5          | 82.7   | 82.2          | 82.5   | +0.3                  |
| Expected years of schooling | 15.5          | 15.6   | 15.8          | 15.8   | +0.0                  |
| Mean years of schooling     | 11.4          | 11.5   | 11.6          | 11.6   | +0.0                  |
| GNI per capita (PPP \$)     | 40,511        | 47,173 | 43,048        | 45,937 | +2,889                |









134

Out of 141

not out of 118 in 2021

SMART CITY RATING

C

not in 2021

FACTOR RATINGS

C

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

Population HDI 9,562,280 0.820

(UN Data)

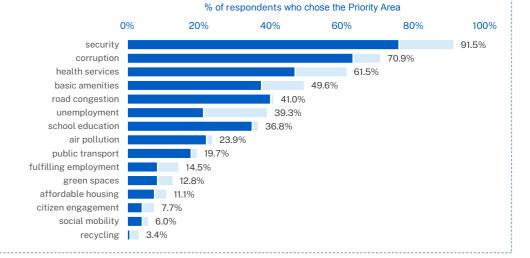


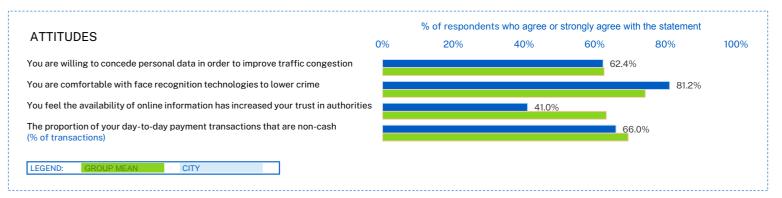
| Country<br>HDI              | 2018<br>0.776 | 2019<br>0.780 | 2020<br>0.762 | 2021<br>0.762 | 1 yr change<br>+0.000 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 76.0          | 76.2          | 73.7          | 72.4          | -1.3                  |
| Expected years of schooling | 15.2          | 15.4          | 15.4          | 15.4          | +0.0                  |
| Mean years of schooling     | 9.8           | 9.9           | 9.9           | 9.9           | +0.0                  |
| GNI per capita (PPP \$)     | 12,143        | 12,304        | 10,917        | 12,246        | +1,329                |

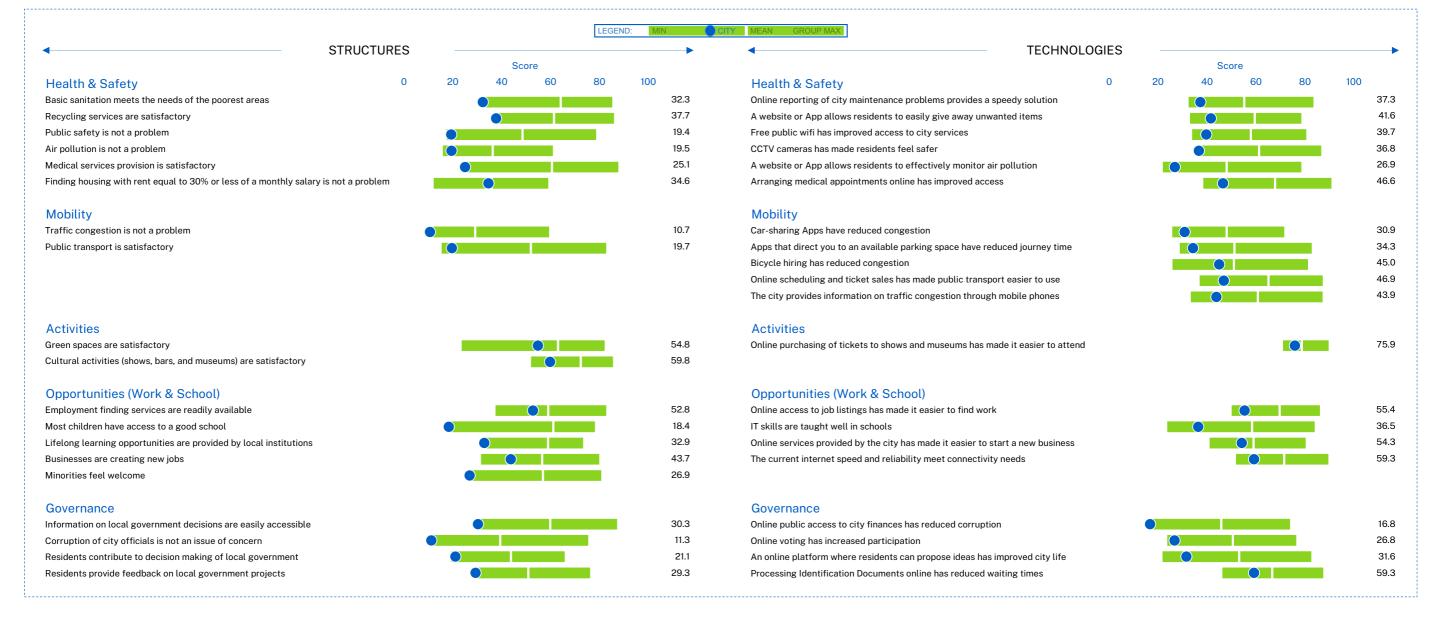
# PRIORITY AREAS

From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.









99

Out of 141



81 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

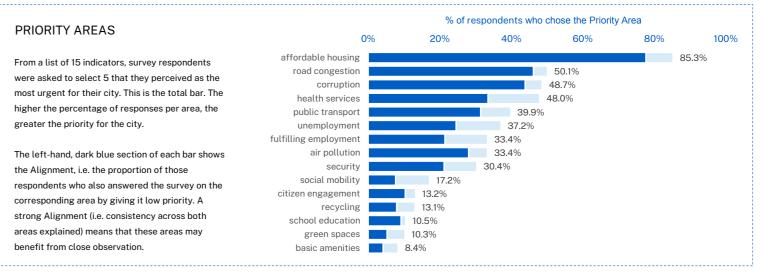
Population HDI 2,869,033 0.900

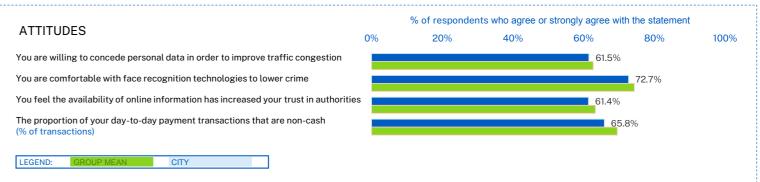
(Eurostat)

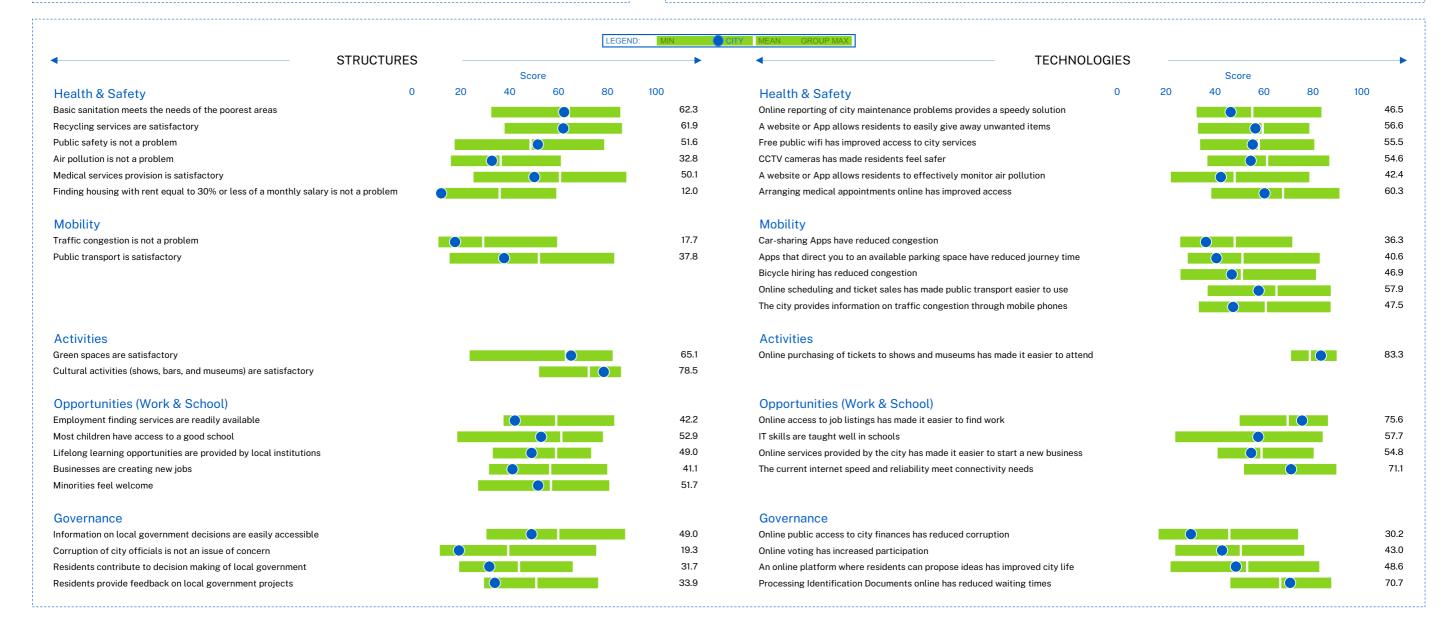


| Мар | tiles | by | Stamen | Design | CC | BY | 3.0 | Мар | Data | 0 | OpenStre |
|-----|-------|----|--------|--------|----|----|-----|-----|------|---|----------|
|     |       |    |        |        |    |    |     |     |      |   |          |

| 2010   | 2010                | 2020   | 2021  | 1 vm obongo   |
|--------|---------------------|--|---|---|
| 2016   | 2019                | 2020   | 2021  | 1 yr change   |
| 0.850  | 0.864               | 0.863  | 0.866   | +0.003  |
| 81.9   | 82.1                | 81.1   | 81.0  | -0.0  |
| 16.3   | 16.5                | 16.9   | 16.9  | +0.0  |
| 9.2    | 9.3                 | 9.6  | 9.6   | +0.0  |
| 27,935 | 33,967              | 31,637   | 33,155  | +1,518  |
|        | 81.9<br>16.3<br>9.2 | 0.850 0.864<br>81.9 82.1<br>16.3 16.5<br>9.2 9.3 | 0.850     0.864     0.863       81.9     82.1     81.1       16.3     16.5     16.9       9.2     9.3     9.6 | 0.850       0.864       0.863       0.866         81.9       82.1       81.1       81.0         16.3       16.5       16.9       16.9         9.2       9.3       9.6       9.6 |







# Ljubljana

SMART CITY RANKING

47

Out of 141

not out of 118 in 2021

SMART CITY RATING

**BBB** 

not in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

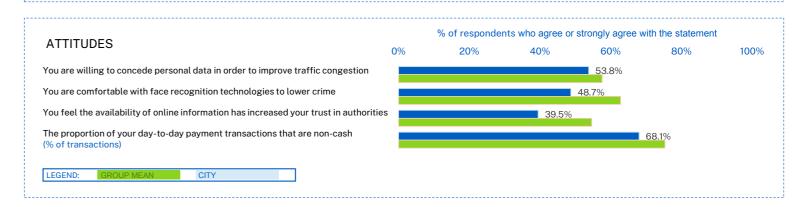
Population HDI 555,948 0.953

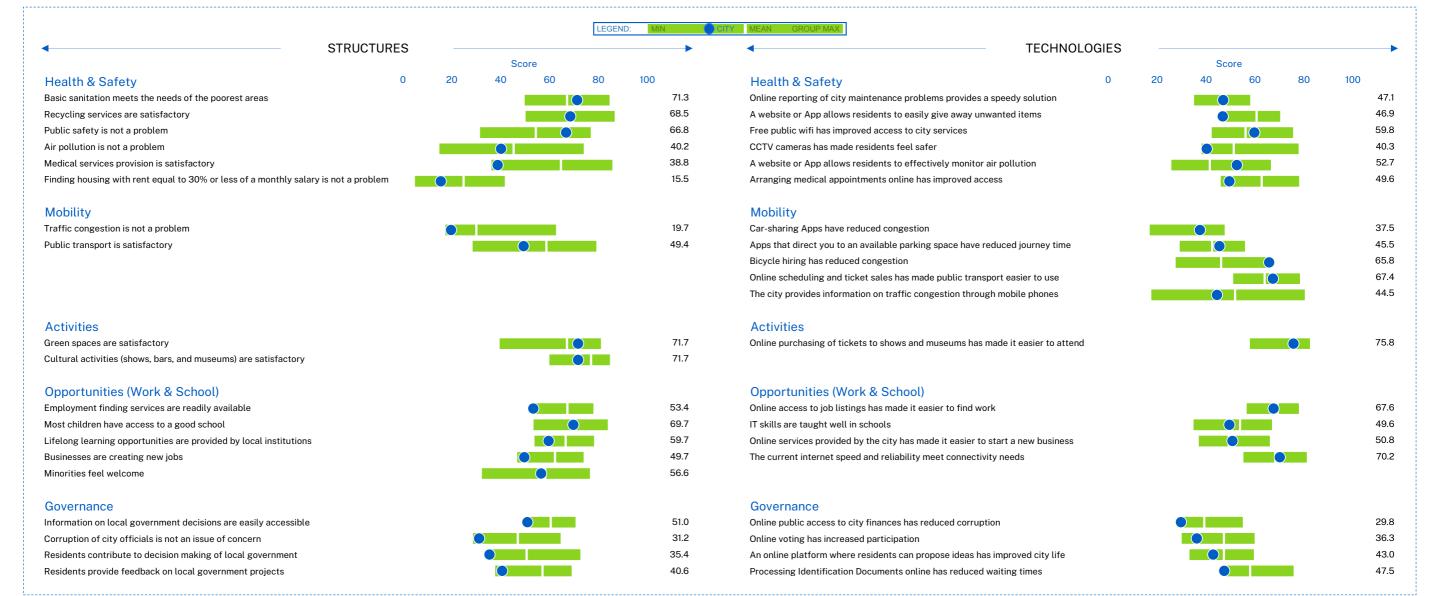
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.917  | 0.921  | 0.913  | 0.918  | +0.005      |
| Life expectancy at birth    | 81.4   | 81.6   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.6   | 17.7   | 17.7   | 17.7   | +0.0        |
| Mean years of schooling     | 12.8   | 12.8   | 12.8   | 12.8   | +0.0        |
| GNI per capita (PPP \$)     | 37,411 | 38,440 | 36,993 | 39,746 | +2,753      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 68.1% From a list of 15 indicators, survey respondents health services 62.2% were asked to select 5 that they perceived as the road congestion most urgent for their city. This is the total bar. The 41.2% public transport higher the percentage of responses per area, the 40.3% corruption greater the priority for the city. basic amenities 34.5% unemployment 28.6% 26.9% The left-hand, dark blue section of each bar shows air pollution 24.4% fulfilling employment the Alignment, i.e. the proportion of those recycling 21.9% respondents who also answered the survey on the 21.0% security corresponding area by giving it low priority. A 19.3% green spaces strong Alignment (i.e. consistency across both citizen engagement 10.9% areas explained) means that these areas may school education 10.9% benefit from close observation. social mobility 10.1%





# London

**SMART** CITY **RANKING** 

Out of 141



3 out of 118 in 2021

**SMART CITY RATING** 



A in 2021

**FACTOR RATINGS** 

**BBB** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

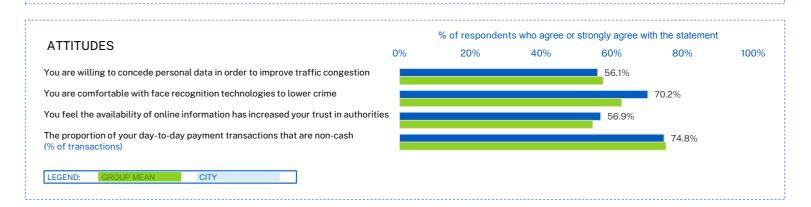
Population HDI 0.973 8,982,256

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.932  | 0.924  | 0.929  | +0.005      |
| Life expectancy at birth    | 81.2   | 81.3   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.4   | 17.5   | 17.3   | 17.3   | +0.0        |
| Mean years of schooling     | 13.0   | 13.2   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 39,507 | 46,071 | 42,375 | 45,225 | +2,850      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 49.0% health services were asked to select 5 that they perceived as the air pollution 46.1% most urgent for their city. This is the total bar. The 43.8% security higher the percentage of responses per area, the 41.2% road congestion greater the priority for the city. unemployment 30.5% fulfilling employment 28.2% public transport 27.1% The left-hand, dark blue section of each bar shows 24.2% recycling the Alignment, i.e. the proportion of those corruption 23.0% respondents who also answered the survey on the school education 21.4% corresponding area by giving it low priority. A 18.9% green spaces strong Alignment (i.e. consistency across both social mobility 17.0% areas explained) means that these areas may basic amenities 14.8% benefit from close observation. citizen engagement 8.6%





# Los Angeles

SMART CITY RANKING

**50** 

Out of 141



30 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### BACKGROUND INFORMATION

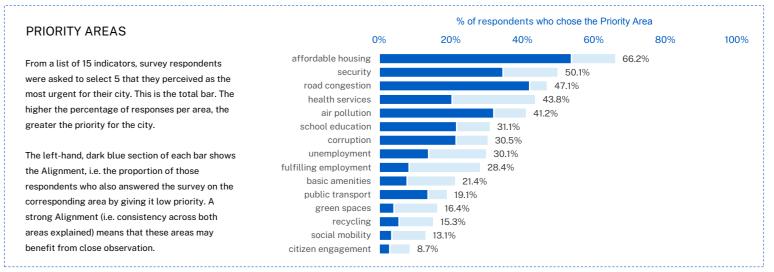
# City

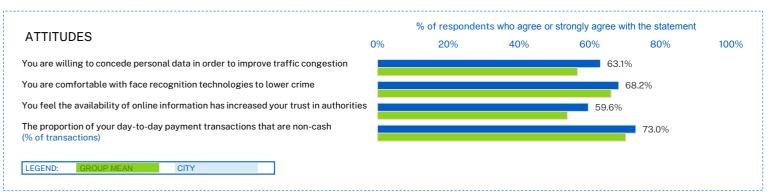
Population HDI 3,898,747 0.931

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |







# Luxembourg

SMART CITY RANKING

45

Out of 141

not out of 118 in 2021

SMART CITY RATING

BB

not in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

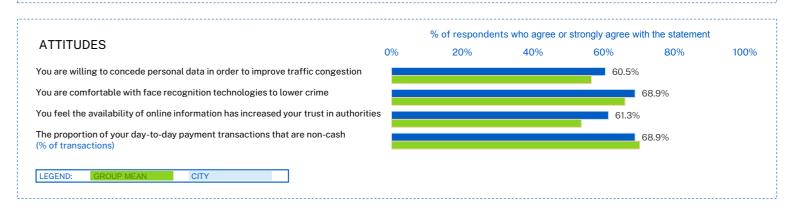
Population HDI 634,730 0.930

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.922  | 0.927  | 0.924  | 0.930  | +0.006      |
| Life expectancy at birth    | 81.8   | 82.1   | 81.4   | 82.6   | +1.2        |
| Expected years of schooling | 14.3   | 14.4   | 14.4   | 14.4   | +0.0        |
| Mean years of schooling     | 12.8   | 13.0   | 13.0   | 13.0   | +0.0        |
| GNI per capita (PPP \$)     | 81,399 | 76,019 | 80,286 | 84,649 | +4,364      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 86.6% From a list of 15 indicators, survey respondents road congestion 69.7% were asked to select 5 that they perceived as the 48.7% security most urgent for their city. This is the total bar. The fulfilling employment 26.9% higher the percentage of responses per area, the unemplovment 26.1% greater the priority for the city. air pollution 23.5% health services 22.7% 21.0% The left-hand, dark blue section of each bar shows citizen engagement public transport 20.2% the Alignment, i.e. the proportion of those corruption 18.5% respondents who also answered the survey on the green spaces 14.3% corresponding area by giving it low priority. A school education 14.3% strong Alignment (i.e. consistency across both 12 6% recycling areas explained) means that these areas may social mobility 11.8% benefit from close observation. basic amenities







64

Out of 141



62 out of 118 in 2021

SMART CITY RATING

BB

CCC in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

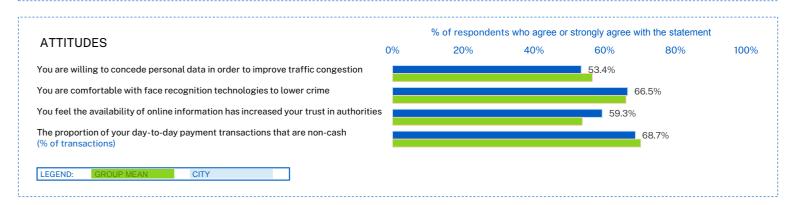
Population HDI 6,740,730 0.914

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.891  | 0.901  | 0.898  | 0.903  | +0.005      |
| Life expectancy at birth    | 82.5   | 82.7   | 82.2   | 82.5   | +0.3        |
| Expected years of schooling | 15.5   | 15.6   | 15.8   | 15.8   | +0.0        |
| Mean years of schooling     | 11.4   | 11.5   | 11.6   | 11.6   | +0.0        |
| GNI per capita (PPP \$)     | 40,511 | 47,173 | 43,048 | 45,937 | +2,889      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 58.2% air pollution were asked to select 5 that they perceived as the 56.4% security most urgent for their city. This is the total bar. The 55.3% road congestion higher the percentage of responses per area, the unemployment 35.0% greater the priority for the city. recycling 25.4% health services 25.1% public transport 23.0% The left-hand, dark blue section of each bar shows basic amenities 19.6% the Alignment, i.e. the proportion of those fulfilling employment 19.2% respondents who also answered the survey on the school education 15.6% corresponding area by giving it low priority. A 15.0% green spaces strong Alignment (i.e. consistency across both 14 5% corruption areas explained) means that these areas may social mobility 14.5% benefit from close observation. citizen engagement 11.6%







**37** 

Out of 141

37 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

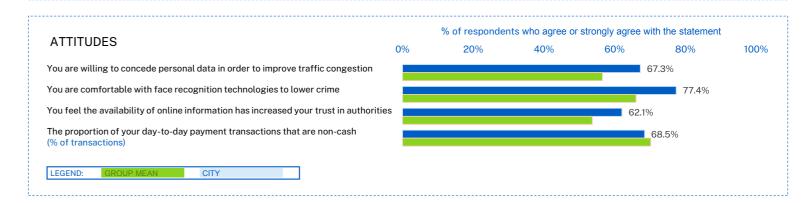
Population HDI 6,755,828 0.940

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.893  | 0.904  | 0.899  | 0.905  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.6   | 82.3   | 83.0   | +0.7        |
| Expected years of schooling | 17.9   | 17.6   | 17.9   | 17.9   | +0.0        |
| Mean years of schooling     | 9.8    | 10.3   | 10.6   | 10.6   | +0.0        |
| GNI per capita (PPP \$)     | 35,041 | 40,975 | 36,516 | 38,354 | +1,838      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 70.3% From a list of 15 indicators, survey respondents fulfilling employment 64.5% were asked to select 5 that they perceived as the health services 57.7% most urgent for their city. This is the total bar. The 44.2% unemployment higher the percentage of responses per area, the 38.5% security greater the priority for the city. air pollution 37.1% corruption The left-hand, dark blue section of each bar shows road congestion 22.9% school education the Alignment, i.e. the proportion of those basic amenities 19.5% respondents who also answered the survey on the green spaces 15.6% corresponding area by giving it low priority. A 14.8% public transport strong Alignment (i.e. consistency across both recycling 14.7% areas explained) means that these areas may citizen engagement 11.6% benefit from close observation. social mobility 11.5%





# Makassar

SMART CITY RANKING

114

Out of 141



102 out of 118 in 2021

SMART CITY RATING

CC

C in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Population HDI 1,642,129 0.699

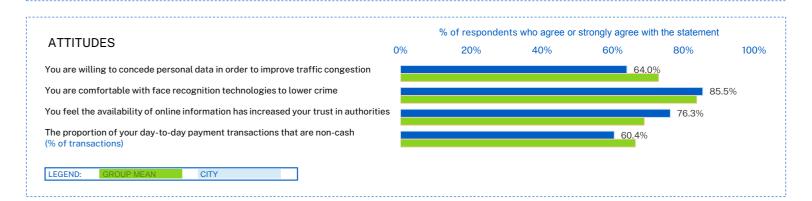
(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.707  | 0.718  | 0.709  | 0.705  | -0.004      |
| Life expectancy at birth    | 71.5   | 71.7   | 68.8   | 67.6   | -1.2        |
| Expected years of schooling | 12.9   | 13.6   | 13.8   | 13.8   | +0.0        |
| Mean years of schooling     | 8.0    | 8.2    | 8.6    | 8.6    | +0.0        |
| GNI per capita (PPP \$)     | 11,256 | 11,459 | 11,142 | 11,466 | +325        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% 53.7% unemployment From a list of 15 indicators, survey respondents corruption 50.4% were asked to select 5 that they perceived as the road congestion 49.8% most urgent for their city. This is the total bar. The 46.5% higher the percentage of responses per area, the 45.6% security greater the priority for the city. 37.1% health services public transport 30.2% 29.9% The left-hand, dark blue section of each bar shows air pollution 27.2% green spaces the Alignment, i.e. the proportion of those recycling 22.9% respondents who also answered the survey on the 21.7% school education corresponding area by giving it low priority. A fulfilling employment 21.4% strong Alignment (i.e. consistency across both affordable housing 20.9% areas explained) means that these areas may citizen engagement 14.5%

11.4%



social mobility



benefit from close observation.

# Manchester

SMART CITY RANKING

**73** 

Out of 141



58 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

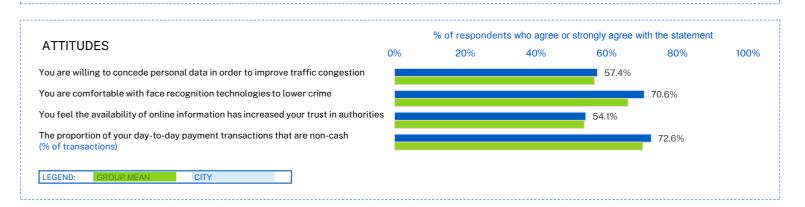
Population HDI 553,230 0.915

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.932  | 0.924  | 0.929  | +0.005      |
| Life expectancy at birth    | 81.2   | 81.3   | 80.4   | 80.7   | +0.3        |
| Expected years of schooling | 17.4   | 17.5   | 17.3   | 17.3   | +0.0        |
| Mean years of schooling     | 13.0   | 13.2   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 39,507 | 46,071 | 42,375 | 45,225 | +2,850      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 69.7% From a list of 15 indicators, survey respondents health services 46.6% were asked to select 5 that they perceived as the road congestion 44.0% most urgent for their city. This is the total bar. The 43.0% unemployment higher the percentage of responses per area, the security 36.3% greater the priority for the city. air pollution 34.3% public transport 28.1% 27.1% The left-hand, dark blue section of each bar shows green spaces fulfilling employment 24.7% the Alignment, i.e. the proportion of those recycling 24.3% respondents who also answered the survey on the school education 21.6% corresponding area by giving it low priority. A corruption 17.9% strong Alignment (i.e. consistency across both 14 5% social mobility areas explained) means that these areas may basic amenities 12.6% benefit from close observation. citizen engagement





# Manila

SMART CITY RANKING

115

Out of 141



100 out of 118 in 2021

SMART CITY RATING

C

C in 2021

FACTOR RATINGS

C

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Population HDI 1,846,513 0.760

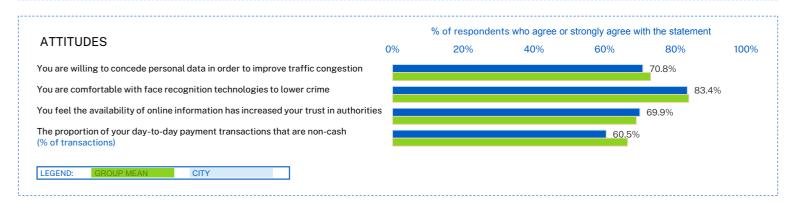
(UN Data)



| Man | tiles by | Stamen | Design | CC B | Y 3.0 | Man | Data | (c) | Onen | Stre | etM |
|-----|----------|--------|--------|------|-------|-----|------|-----|------|------|-----|
|     |          |        |        |      |       |     |      |     |      |      |     |

| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.712 | 0.718 | 0.710 | 0.699 | -0.011      |
| Life expectancy at birth    | 71.1  | 71.2  | 72.1  | 69.3  | -2.9        |
| Expected years of schooling | 12.7  | 13.1  | 13.1  | 13.1  | +0.0        |
| Mean years of schooling     | 9.4   | 9.4   | 9.0   | 9.0   | +0.0        |
| GNI per capita (PPP \$)     | 9,540 | 9,778 | 8,559 | 8,920 | +362        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% health services From a list of 15 indicators, survey respondents 47.5% corruption were asked to select 5 that they perceived as the unemployment 46.4% most urgent for their city. This is the total bar. The 42.9% security higher the percentage of responses per area, the 41.6% road congestion greater the priority for the city. air pollution 41.1% public transport 39.1% affordable housing 38.4% The left-hand, dark blue section of each bar shows basic amenities 36.3% the Alignment, i.e. the proportion of those fulfilling employment 30.6% respondents who also answered the survey on the school education 22.4% corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both green spaces 14 3% areas explained) means that these areas may citizen engagement 5.3% benefit from close observation. social mobility 3.5%





# Marseille

SMART CITY RANKING

101

Out of 141



91 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

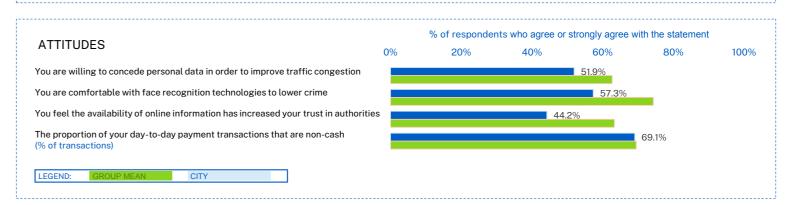
Population HDI 5,116,360 0.899

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.891  | 0.901  | 0.898  | 0.903  | +0.005      |
| Life expectancy at birth    | 82.5   | 82.7   | 82.2   | 82.5   | +0.3        |
| Expected years of schooling | 15.5   | 15.6   | 15.8   | 15.8   | +0.0        |
| Mean years of schooling     | 11.4   | 11.5   | 11.6   | 11.6   | +0.0        |
| GNI per capita (PPP \$)     | 40,511 | 47,173 | 43,048 | 45,937 | +2,889      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security From a list of 15 indicators, survey respondents affordable housing 55.7% were asked to select 5 that they perceived as the road congestion 48.5% most urgent for their city. This is the total bar. The 43.4% air pollution higher the percentage of responses per area, the unemployment 35.8% greater the priority for the city. corruption 32.0% recycling 30.5% The left-hand, dark blue section of each bar shows basic amenities 27.1% public transport the Alignment, i.e. the proportion of those health services 21.5% respondents who also answered the survey on the 19.6% green spaces corresponding area by giving it low priority. A school education 17.4% strong Alignment (i.e. consistency across both fulfilling employment 16.6% areas explained) means that these areas may social mobility 10.4% benefit from close observation. citizen engagement 9.3%







**52** 

Out of 141

not out of 118 in 2021

SMART CITY RATING

B

not in 2021

FACTOR RATINGS

B

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

3

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

Population HDI 2,114,675 0.871

(UN World Urbanisation Prospects 2022 estimate)

Egypt

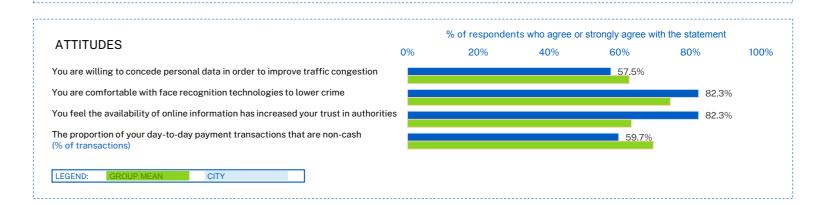
Rowald

Royach

Riyach

| Country<br>HDI              | 2018<br>0.865 | 2019<br>0.873 | 2020<br>0.870 | 2021<br>0.875 | 1 yr change<br>+0.005 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 77.2          | 77.3          | 76.2          | 76.9          | +0.7                  |
| Expected years of schooling | 15.7          | 16.0          | 16.1          | 16.1          | +0.0                  |
| Mean years of schooling     | 10.6          | 8.3           | 8.3           | 8.3           | +0.0                  |
| GNI per capita (PPP \$)     | 5,072         | 5,307         | 5,601         | 5,745         | +143                  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 63.7% From a list of 15 indicators, survey respondents 48.7% unemployment were asked to select 5 that they perceived as the road congestion 43.4% most urgent for their city. This is the total bar. The 36.3% green spaces higher the percentage of responses per area, the fulfilling employment 36.3% greater the priority for the city. basic amenities 31.0% health services 30.1% 28.3% The left-hand, dark blue section of each bar shows air pollution 25.7% recycling the Alignment, i.e. the proportion of those corruption 20.4% respondents who also answered the survey on the 20.4% security corresponding area by giving it low priority. A 18.6% citizen engagement strong Alignment (i.e. consistency across both 18.6% public transport areas explained) means that these areas may social mobility 17.7% benefit from close observation. school education 15.9%





# Medan

SMART CITY RANKING

112

Out of 141



96 out of 118 in 2021

SMART CITY RATING

CC

C in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

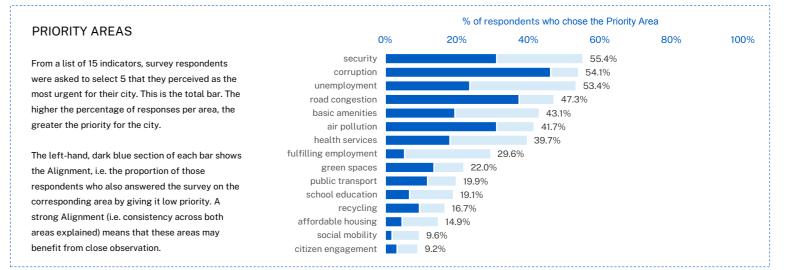
Population HDI 2,435,252 0.711

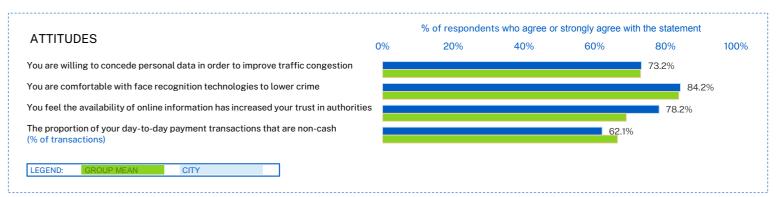
(UN Data)



| Мар | tiles by | Stamen | Design | СС | BY 3.0 | Мар | Data | 0 | OpenStreetM: |
|-----|----------|--------|--------|----|--------|-----|------|---|--------------|
|     |          |        |        |    |        |     |      |   |              |

| r change |
|----------|
| -0.004   |
| -1.2     |
| +0.0     |
| +0.0     |
| +325     |
|          |







# Medellin

SMART CITY RANKING

118

Out of 141



99 out of 118 in 2021

SMART CITY RATING

C

C in 2021

FACTOR RATINGS

C

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Population HDI 2,372,330 0.757

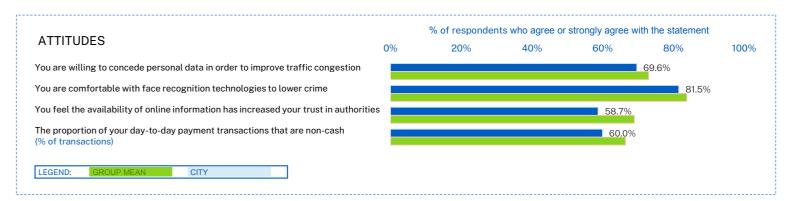
(UN Data)



| Map tiles by | Stamen | Design | СС | BY 3.0 | Мар | Data | 0 | OpenStreetMa |
|--------------|--------|--------|----|--------|-----|------|---|--------------|
|              |        |        |    |        |     |      |   |              |

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.761  | 0.767  | 0.756  | 0.752  | -0.004      |
| Life expectancy at birth    | 77.1   | 77.3   | 74.8   | 72.8   | -1.9        |
| Expected years of schooling | 14.6   | 14.4   | 14.4   | 14.4   | +0.0        |
| Mean years of schooling     | 8.3    | 8.5    | 8.9    | 8.9    | +0.0        |
| GNI per capita (PPP \$)     | 12,896 | 14,257 | 13,185 | 14,384 | +1,199      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% 72.3% security From a list of 15 indicators, survey respondents 53.2% were asked to select 5 that they perceived as the health services 48.2% most urgent for their city. This is the total bar. The 46.3% air pollution higher the percentage of responses per area, the 44.0% unemployment greater the priority for the city. fulfilling employment 43.5% affordable housing 43.1% The left-hand, dark blue section of each bar shows basic amenities 26.9% road congestion the Alignment, i.e. the proportion of those school education 18.4% respondents who also answered the survey on the 16.3% public transport corresponding area by giving it low priority. A social mobility 15.8% strong Alignment (i.e. consistency across both recycling 12.6% areas explained) means that these areas may citizen engagement 12.1% benefit from close observation. green spaces 12.0%





# Medina

SMART CITY RANKING

85

Out of 141



79 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Population HDI 154,542 0.871

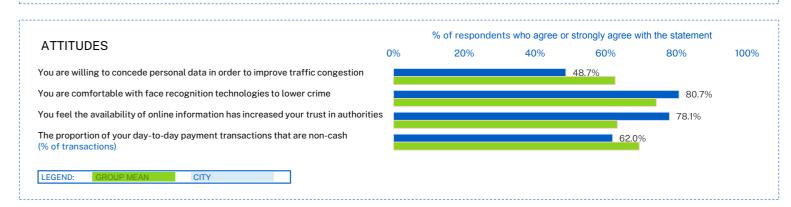
(UN World Urbanisation Prospects 2022

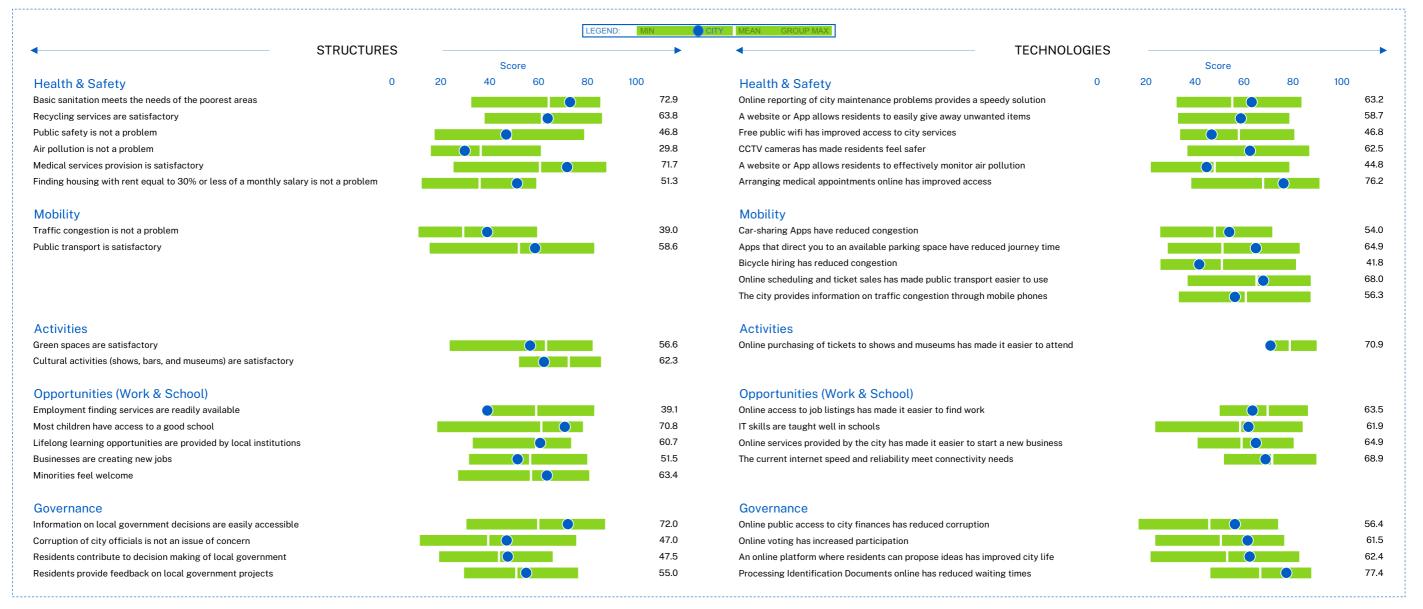
estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.865 | 0.873 | 0.870 | 0.875 | +0.005      |
| Life expectancy at birth    | 77.2  | 77.3  | 76.2  | 76.9  | +0.7        |
| Expected years of schooling | 15.7  | 16.0  | 16.1  | 16.1  | +0.0        |
| Mean years of schooling     | 10.6  | 8.3   | 8.3   | 8.3   | +0.0        |
| GNI per capita (PPP \$)     | 5,072 | 5,307 | 5,601 | 5,745 | +143        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 59.0% unemployment From a list of 15 indicators, survey respondents affordable housing 55.8% were asked to select 5 that they perceived as the road congestion 41.5% most urgent for their city. This is the total bar. The 38.2% green spaces higher the percentage of responses per area, the fulfilling employment 36.2% greater the priority for the city. public transport 31.7% recycling 29.6% 29.3% The left-hand, dark blue section of each bar shows basic amenities health services 29.0% the Alignment, i.e. the proportion of those corruption 26.5% respondents who also answered the survey on the air pollution 19.8% corresponding area by giving it low priority. A school education 17.8% strong Alignment (i.e. consistency across both citizen engagement 12 2% areas explained) means that these areas may security 12.1% benefit from close observation. social mobility 8.2%





# Melbourne

SMART CITY RANKING

31

Out of 141



36 out of 118 in 2021

SMART CITY RATING

A

BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

A

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

## City

Population HDI 4,196,198 0.948

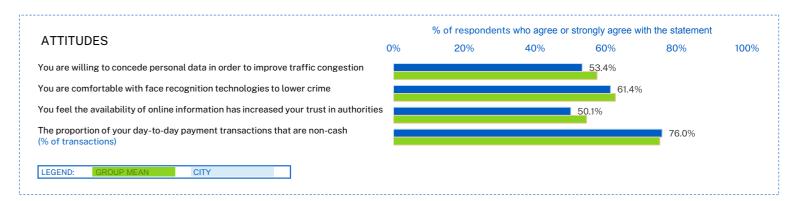
(UN Data)



| ap tile | s by | Stamen | Design | CC | ВΥ | 3.0 | Мар | Data | 0 | Op | oen | Str | ee | ŧΜ | è |
|---------|------|--------|--------|----|----|-----|-----|------|---|----|-----|-----|----|----|---|
|---------|------|--------|--------|----|----|-----|-----|------|---|----|-----|-----|----|----|---|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.941  | 0.941  | 0.947  | 0.951  | +0.004      |
| Life expectancy at birth    | 83.4   | 83.1   | 84.3   | 84.5   | +0.2        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.1   | 12.4   | 12.4   | +0.0        |
| GNI per capita (PPP \$)     | 43,821 | 52,085 | 49,392 | 52,293 | +2,901      |
|                             |        |        |        |        |             |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 83.7% From a list of 15 indicators, survey respondents 55.5% road congestion were asked to select 5 that they perceived as the health services 45.9% most urgent for their city. This is the total bar. The 41.3% unemployment higher the percentage of responses per area, the security 37.6% greater the priority for the city. recycling 28.0% fulfilling employment 27.3% 26.1% The left-hand, dark blue section of each bar shows public transport corruption 20.3% the Alignment, i.e. the proportion of those school education 19.2% respondents who also answered the survey on the 17.7% air pollution corresponding area by giving it low priority. A social mobility 16.2% strong Alignment (i.e. consistency across both 15.4% green spaces areas explained) means that these areas may basic amenities 14.9% benefit from close observation. citizen engagement 9.6%





# **Mexico City**

SMART CITY RANKING

121

Out of 141



110 out of 118 in 2021

SMART CITY RATING

C

C in 2021

FACTOR RATINGS

C

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

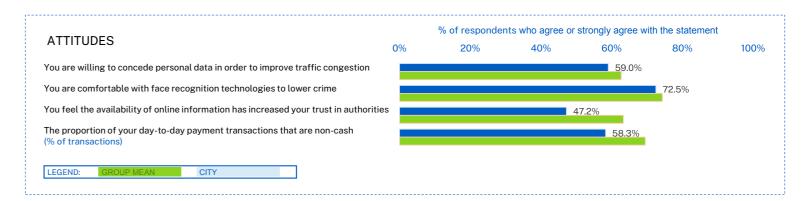
Population HDI 22,085,139 0.815

(UN World Urbanisation Prospects 2022 estimate)

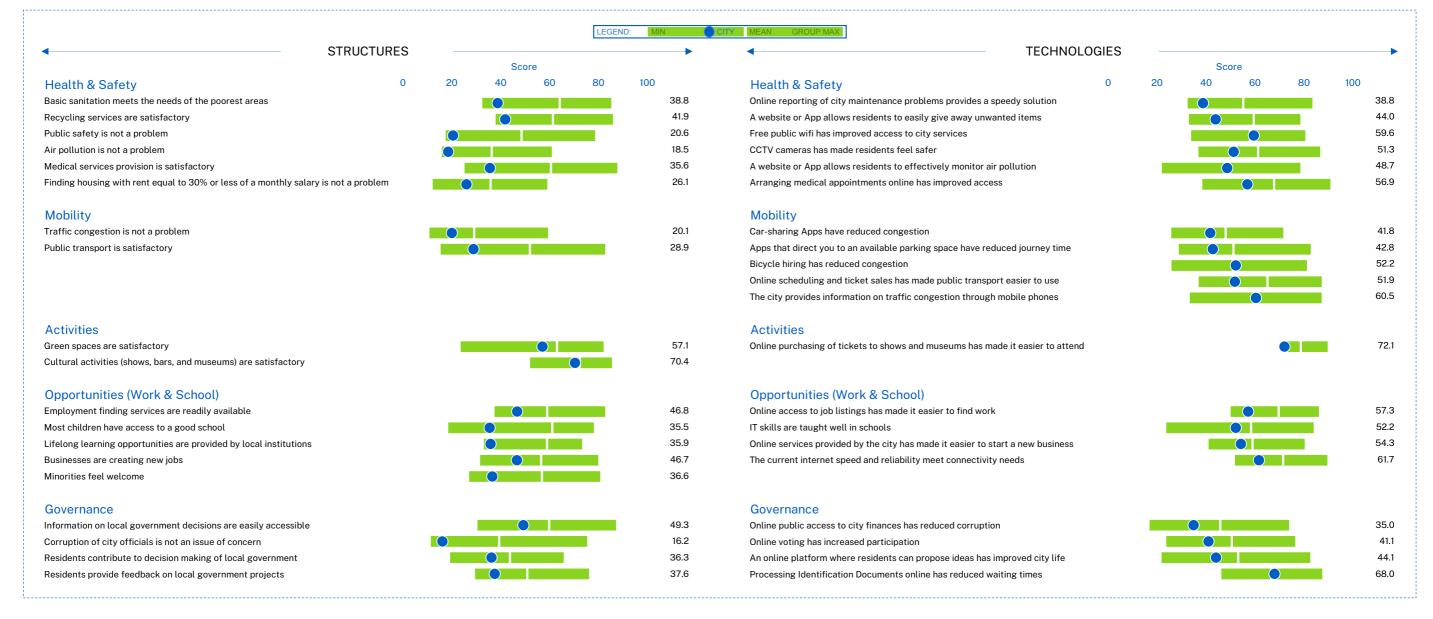


| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.767  | 0.779  | 0.756  | 0.758  | +0.002      |
| Life expectancy at birth    | 75.0   | 75.1   | 70.1   | 70.2   | +0.1        |
| Expected years of schooling | 14.3   | 14.8   | 14.9   | 14.9   | +0.0        |
| Mean years of schooling     | 8.6    | 8.8    | 9.2    | 9.2    | +0.0        |
| GNI per capita (PPP \$)     | 17,628 | 19,160 | 17,235 | 17,896 | +662        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% security From a list of 15 indicators, survey respondents health services 55.2% were asked to select 5 that they perceived as the 53.1% corruption most urgent for their city. This is the total bar. The 43.8% basic amenities higher the percentage of responses per area, the 41.9% unemployment greater the priority for the city. air pollution 35.9% fulfilling employment 35.2% public transport 28.4% The left-hand, dark blue section of each bar shows 25.9% affordable housing the Alignment, i.e. the proportion of those road congestion respondents who also answered the survey on the 18.5% school education corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both green spaces 15.0% areas explained) means that these areas may social mobility 7.8%



citizen engagement 6.7%



benefit from close observation.



82

Out of 141



69 out of 118 in 2021

SMART CITY RATING

BB

CC in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

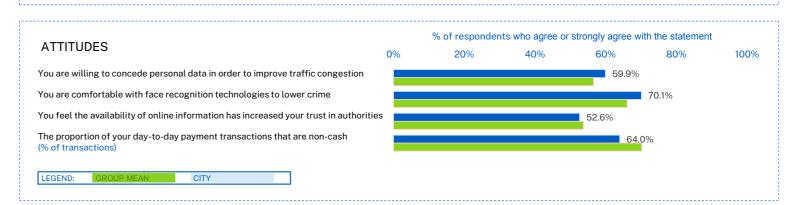
Population HDI 9,981,554 0.915

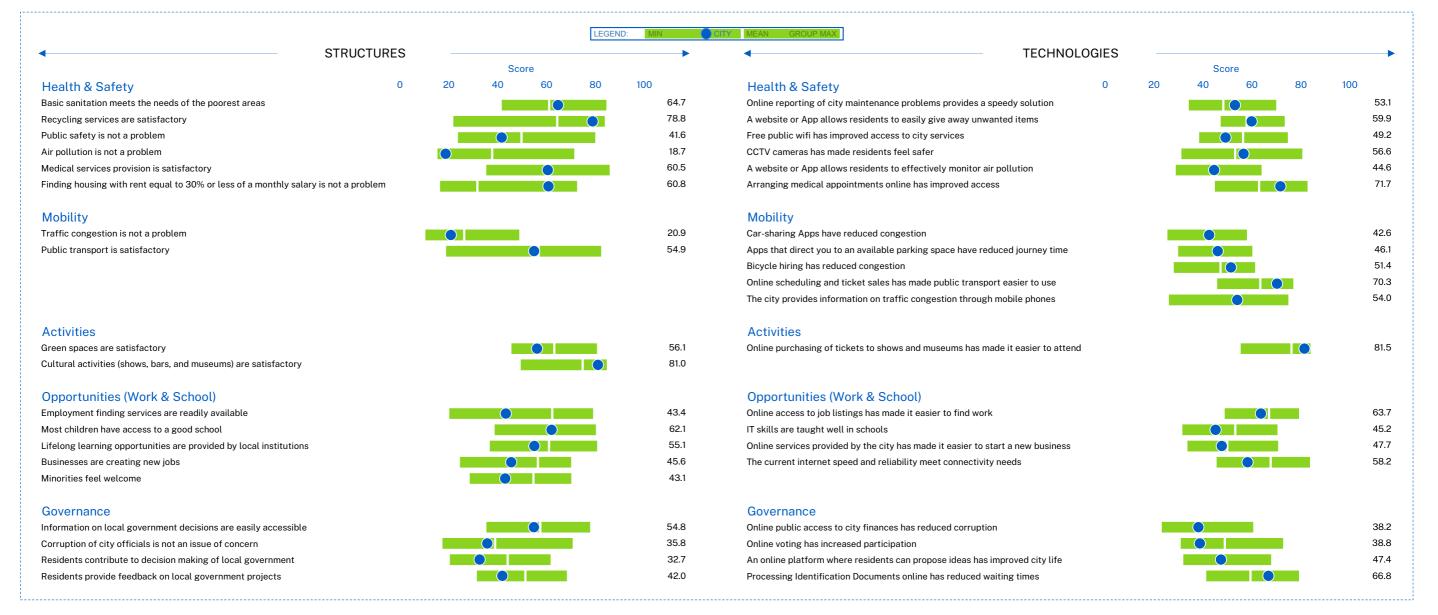
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.883  | 0.892  | 0.889  | 0.895  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.5   | 82.4   | 82.9   | +0.4        |
| Expected years of schooling | 16.2   | 16.1   | 16.2   | 16.2   | +0.0        |
| Mean years of schooling     | 10.2   | 10.4   | 10.7   | 10.7   | +0.0        |
| GNI per capita (PPP \$)     | 36,141 | 42,776 | 39,901 | 42,840 | +2,939      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% air pollution From a list of 15 indicators, survey respondents security 55.5% were asked to select 5 that they perceived as the affordable housing 52.8% most urgent for their city. This is the total bar. The 48.1% road congestion higher the percentage of responses per area, the unemployment 46.7% greater the priority for the city. fulfilling employment 34.6% public transport 27.8% 26.2% The left-hand, dark blue section of each bar shows green spaces corruption the Alignment, i.e. the proportion of those recycling 16.1% respondents who also answered the survey on the 15.2% citizen engagement corresponding area by giving it low priority. A school education 14.3% strong Alignment (i.e. consistency across both health services 13.6% areas explained) means that these areas may social mobility 13.4% benefit from close observation. basic amenities





# Montreal

SMART CITY RANKING

**69** 

Out of 141



55 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

B

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

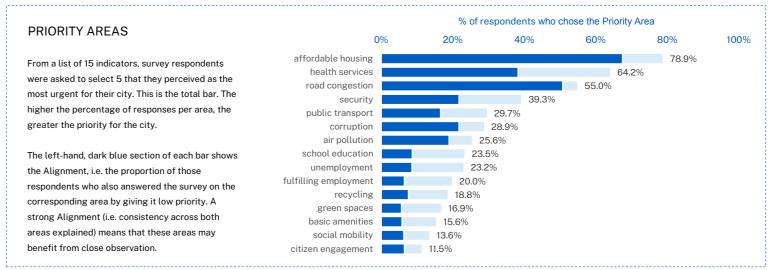
Population HDI 1,704,690 0.923

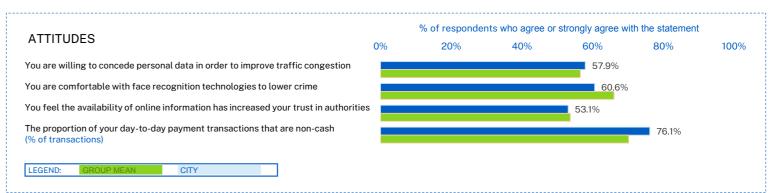
(UN Data)



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|-------------|----------|----------|-------|-----|-----|------|---|--------------|
|-------------|----------|----------|-------|-----|-----|------|---|--------------|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.933  | 0.937  | 0.931  | 0.936  | +0.005      |
| Life expectancy at birth    | 82.1   | 82.4   | 82.1   | 82.7   | +0.6        |
| Expected years of schooling | 16.2   | 16.4   | 16.4   | 16.4   | +0.0        |
| Mean years of schooling     | 13.8   | 8.7    | 8.8    | 8.8    | +0.0        |
| GNI per capita (PPP \$)     | 18,371 | 18,486 | 18,754 | 19,974 | +1,220      |
|                             |        |        |        |        |             |







# Mumbai

SMART CITY RANKING

109

Out of 141



95 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

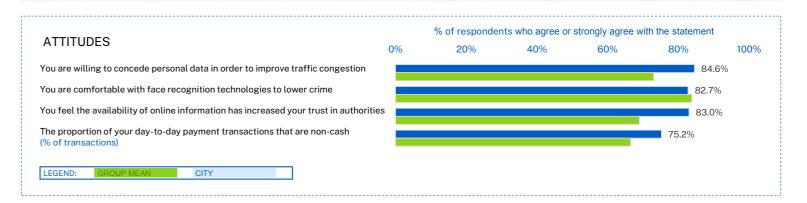
Population HDI 20,961,473 0.688

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.647 | 0.645 | 0.642 | 0.633 | -0.009      |
| Life expectancy at birth    | 69.4  | 69.7  | 70.2  | 67.2  | -2.9        |
| Expected years of schooling | 12.3  | 12.2  | 11.9  | 11.9  | +0.0        |
| Mean years of schooling     | 6.5   | 6.5   | 6.7   | 6.7   | +0.0        |
| GNI per capita (PPP \$)     | 6,829 | 6,681 | 6,107 | 6,590 | +482        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% air pollution From a list of 15 indicators, survey respondents affordable housing 46.8% were asked to select 5 that they perceived as the road congestion 40.7% most urgent for their city. This is the total bar. The 39.9% basic amenities higher the percentage of responses per area, the 37.1% corruption greater the priority for the city. security 35.7% unemployment 34.4% 34.3% The left-hand, dark blue section of each bar shows green spaces health services 33.6% the Alignment, i.e. the proportion of those public transport 32.7% respondents who also answered the survey on the fulfilling employment 29.6% corresponding area by giving it low priority. A recycling 22.9% strong Alignment (i.e. consistency across both school education 18.4% areas explained) means that these areas may social mobility 11.1% benefit from close observation. citizen engagement 9.0%





# Munich

SMART CITY RANKING

20

Out of 141



15 out of 118 in 2021

SMART CITY RATING



AA in 2021

FACTOR RATINGS



STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

## City

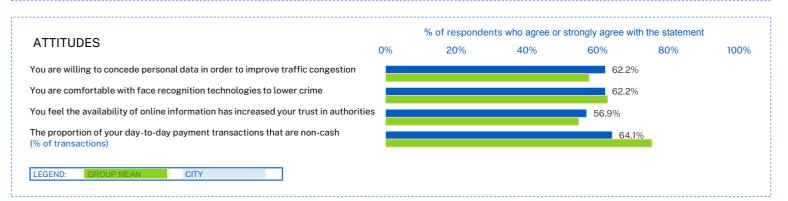
Population HDI 13,140,183 0.950

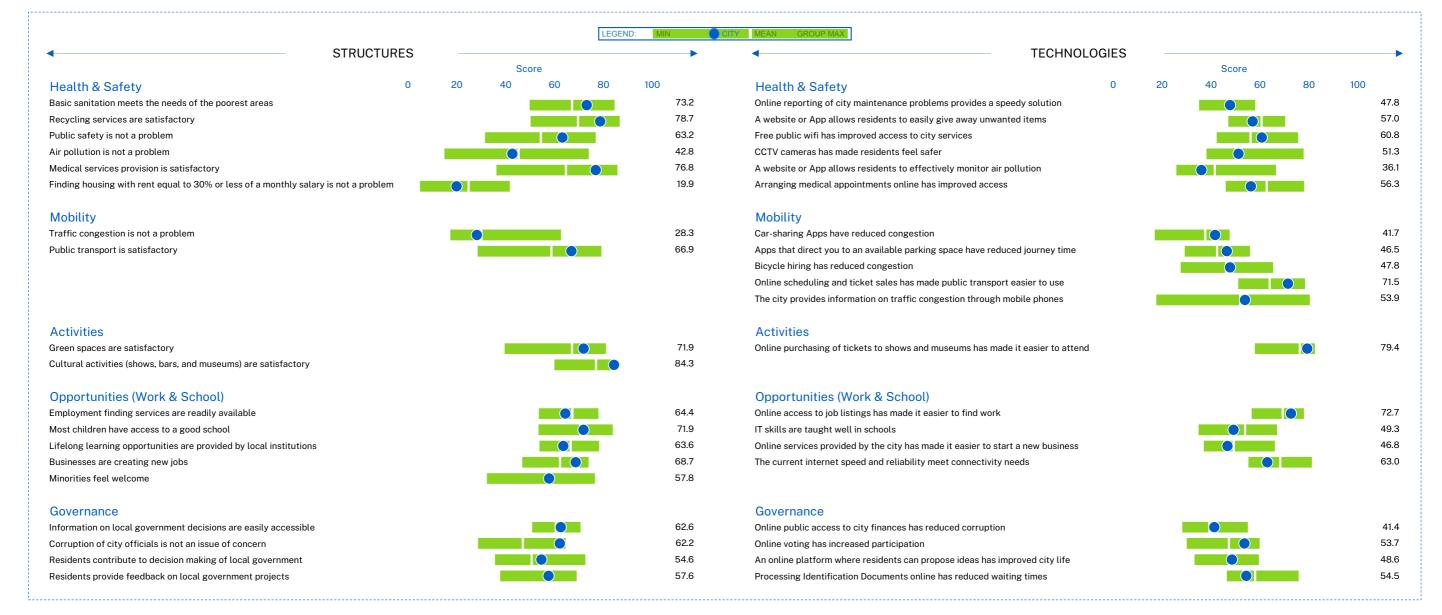
(Eurostat)



| Country<br>HDI              | 2018<br>0.939 | 2019<br>0.947 | 2020<br>0.944 | 2021<br>0.942 | 1 yr change<br>-0.002 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 81.2          | 81.3          | 81.2          | 80.6          | -0.5                  |
| Expected years of schooling | 17.1          | 17.0          | 17.0          | 17.0          | +0.0                  |
| Mean years of schooling     | 14.1          | 14.2          | 14.1          | 14.1          | +0.0                  |
| GNI per capita (PPP \$)     | 46,946        | 55,314        | 53,078        | 54,534        | +1,457                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents road congestion 65.8% were asked to select 5 that they perceived as the air pollution 42.7% most urgent for their city. This is the total bar. The 30.8% unemployment higher the percentage of responses per area, the 29.7% security greater the priority for the city. public transport 26.1% recycling 23.8% 22.1% The left-hand, dark blue section of each bar shows green spaces fulfilling employment the Alignment, i.e. the proportion of those social mobility 16.2% respondents who also answered the survey on the health services 15.4% corresponding area by giving it low priority. A 15.3% strong Alignment (i.e. consistency across both 14.6% citizen engagement areas explained) means that these areas may school education 12.6% benefit from close observation. corruption 11.8%





# Muscat

SMART CITY RANKING

96

Out of 141

not out of 118 in 2021

SMART CITY RATING

B

not in 2021

FACTOR RATINGS

B

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

Population HDI 162,262 0.816

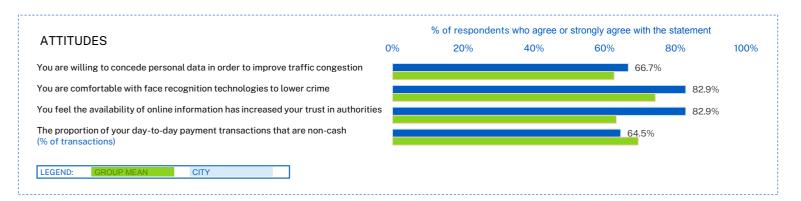
(UN World Urbanisation Prospects 2022 estimate)

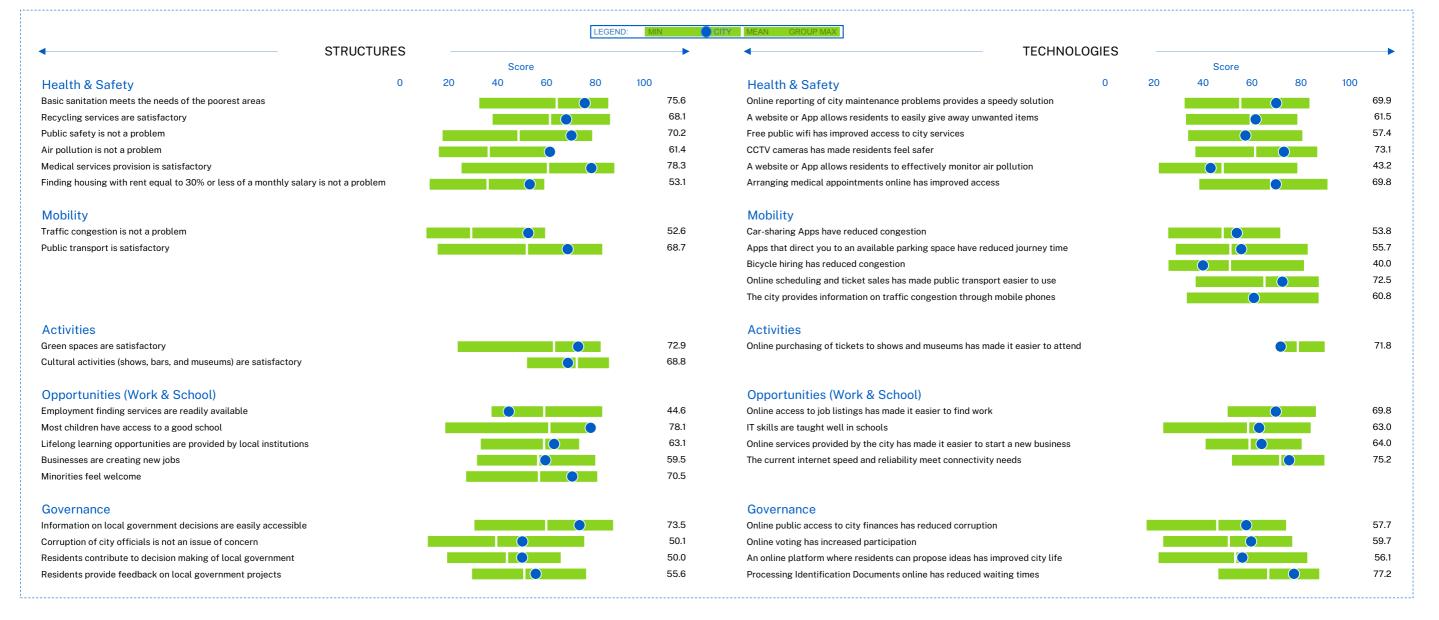


| Мар | tiles | by | Stamen | Design | СС | BY 3. | 0 M | ар | Data | 0 | OpenStreetMa |
|-----|-------|----|--------|--------|----|-------|-----|----|------|---|--------------|
|     |       | -, |        |        |    |       |     |    |      |   |              |

| Country<br>HDI              | 2018<br>0.834 | 2019<br>0.839 | 2020<br>0.827 | 2021<br>0.816 | 1 yr change<br>-0.011 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 78.0          | 78.0          | 74.8          | 72.5          | -2.2                  |
| Expected years of schooling | 14.1          | 14.3          | 14.6          | 14.6          | +0.0                  |
| Mean years of schooling     | 10.8          | 11.2          | 11.7          | 11.7          | +0.0                  |
| GNI per capita (PPP \$)     | 30,632        | 29,071        | 27,277        | 27,054        | -223                  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 62.4% From a list of 15 indicators, survey respondents unemployment 61.5% were asked to select 5 that they perceived as the road congestion 42.7% most urgent for their city. This is the total bar. The fulfilling employment 39.3% higher the percentage of responses per area, the green spaces 33.3% greater the priority for the city. public transport 30.8% recycling 29.9% health services 29.1% The left-hand, dark blue section of each bar shows citizen engagement 26.5% the Alignment, i.e. the proportion of those corruption 26.5% respondents who also answered the survey on the basic amenities 22.2% corresponding area by giving it low priority. A air pollution 19.7% strong Alignment (i.e. consistency across both school education 18.8% areas explained) means that these areas may social mobility 13.7% benefit from close observation. 13.7%





# Nairobi

SMART CITY RANKING

131

Out of 141



115 out of 118 in 2021

SMART CITY RATING

C

D in 2021

FACTOR RATINGS

C

STRUCTURES

C

**TECHNOLOGIES** 

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

Country

Population HDI 5,118,844 0.636

(UN World Urbanisation Prospects 2022 estimate)



| 2020 | 2021 | 1 yr change |
|------|------|-------------|

| HDI                         | 0.579 | 0.601 | 0.578 | 0.575 | -0.003 |
|-----------------------------|-------|-------|-------|-------|--------|
| Life expectancy at birth    | 66.3  | 66.7  | 62.7  | 61.4  | -1.3   |
| Expected years of schooling | 11.1  | 11.3  | 10.7  | 10.7  | +0.0   |
| Mean years of schooling     | 6.6   | 6.6   | 6.7   | 6.7   | +0.0   |
| GNI per capita (PPP \$)     | 3,052 | 4,244 | 4,267 | 4,474 | +207   |

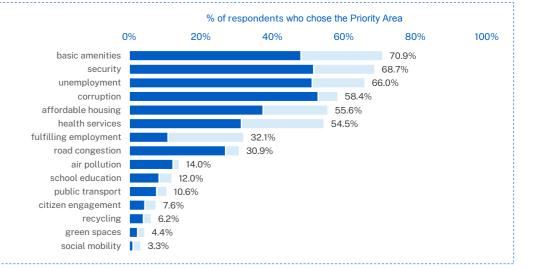
2019

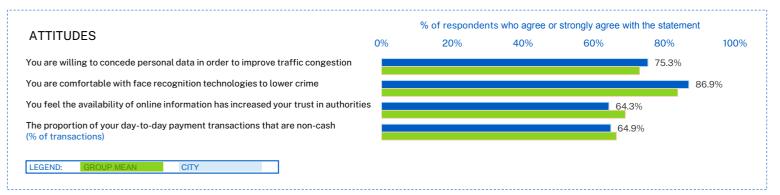
2018

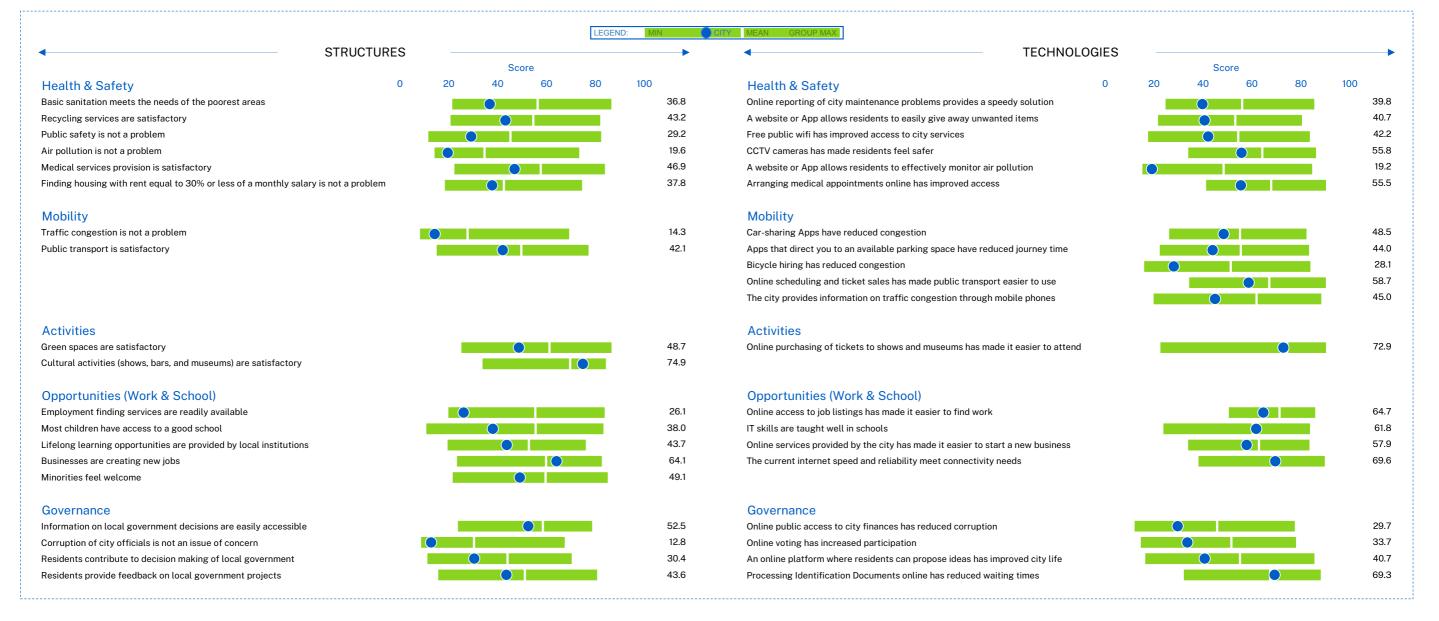
## PRIORITY AREAS

From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.







# Nanjing

SMART CITY RANKING

58

Out of 141



57 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

Population HDI 9,429,381 0.810

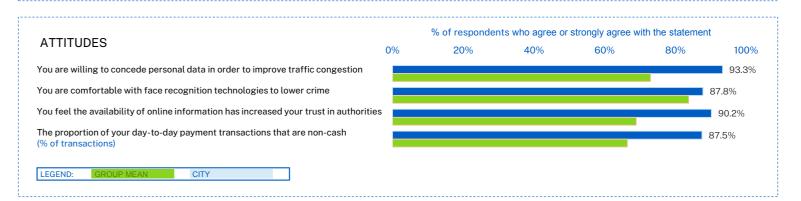
(UN World Urbanisation Prospects 2022 estimate)



|     |          | 01     | n -    | 00 | 01/00  |     | n .  | _ | 0 01 11     |
|-----|----------|--------|--------|----|--------|-----|------|---|-------------|
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| Country<br>HDI              | 2018<br>0.758 | 2019<br>0.761 | 2020<br>0.764 | 2021<br>0.768 | 1 yr change<br>+0.004 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 76.7          | 76.9          | 78.1          | 78.2          | +0.1                  |
| Expected years of schooling | 13.9          | 14.0          | 14.2          | 14.2          | +0.0                  |
| Mean years of schooling     | 7.9           | 8.1           | 7.6           | 7.6           | +0.0                  |
| GNI per capita (PPP \$)     | 16,127        | 16,057        | 16,201        | 17,504        | +1,303                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 58.0% road congestion From a list of 15 indicators, survey respondents 44.2% air pollution were asked to select 5 that they perceived as the health services 40.8% most urgent for their city. This is the total bar. The affordable housing 39.6% higher the percentage of responses per area, the fulfilling employment 38.5% greater the priority for the city. corruption 32.1% school education 29.5% 28.1% The left-hand, dark blue section of each bar shows basic amenities social mobility 24.3% the Alignment, i.e. the proportion of those recycling 20.9% respondents who also answered the survey on the 20.9% security corresponding area by giving it low priority. A 19.5% green spaces strong Alignment (i.e. consistency across both 19.3% public transport areas explained) means that these areas may citizen engagement 18.9% benefit from close observation. unemployment 16.8%





# New York

SMART CITY RANKING

21

Out of 141



19 out of 118 in 2021

SMART CITY RATING

**BBB** 

AA in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

A

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

Population HDI 8,804,190 0.938

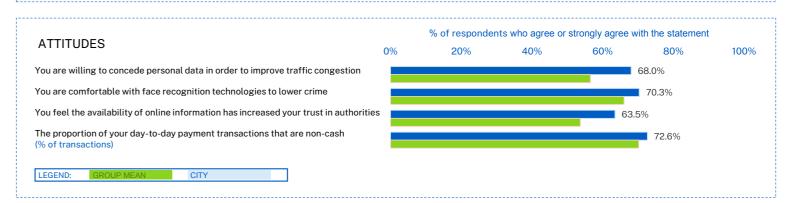
(UN Data)



| lap tiles by Stamen Design CC B | BY 3.0 Map Data © OpenStreetMa |
|---------------------------------|--------------------------------|
|---------------------------------|--------------------------------|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |
|                             |        |        |        |        |             |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 61.9% From a list of 15 indicators, survey respondents 52.6% security were asked to select 5 that they perceived as the road congestion 42.4% most urgent for their city. This is the total bar. The health services 39.5% higher the percentage of responses per area, the 39.1% air pollution greater the priority for the city. 33.5% unemployment corruption 32.2% public transport 28.2% The left-hand, dark blue section of each bar shows fulfilling employment 26.1% the Alignment, i.e. the proportion of those basic amenities 25.7% respondents who also answered the survey on the 23.5% school education corresponding area by giving it low priority. A green spaces strong Alignment (i.e. consistency across both 15.8% social mobility areas explained) means that these areas may recycling 14.3% benefit from close observation. citizen engagement 8.8%





# Newcastle

SMART CITY RANKING

**77** 

Out of 141



61 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

B

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

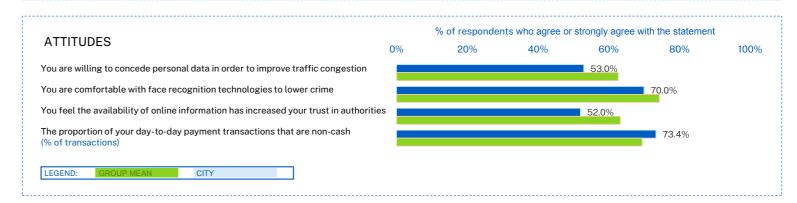
Population HDI 2,656,980 0.901

(Eurostat)



| Country<br>HDI              | 2018<br>0.920 | 2019<br>0.932 | 2020<br>0.924 | 2021<br>0.929 | 1 yr change<br>+0.005 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 81.2          | 81.3          | 80.4          | 80.7          | +0.3                  |
| Expected years of schooling | 17.4          | 17.5          | 17.3          | 17.3          | +0.0                  |
| Mean years of schooling     | 13.0          | 13.2          | 13.4          | 13.4          | +0.0                  |
| GNI per capita (PPP \$)     | 39,507        | 46,071        | 42,375        | 45,225        | +2,850                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 74.3% From a list of 15 indicators, survey respondents 56.3% unemployment were asked to select 5 that they perceived as the health services 49.5% most urgent for their city. This is the total bar. The fulfilling employment 39.0% higher the percentage of responses per area, the 38.5% road congestion greater the priority for the city. security 32.6% public transport 26.6% 24.8% The left-hand, dark blue section of each bar shows recycling 24.5% air pollution the Alignment, i.e. the proportion of those school education 22.7% respondents who also answered the survey on the green spaces 19.5% corresponding area by giving it low priority. A citizen engagement strong Alignment (i.e. consistency across both social mobility 15.1% areas explained) means that these areas may corruption 12.0% benefit from close observation. basic amenities 10.1%





# Nicosia

SMART CITY RANKING

117

Out of 141

not out of 118 in 2021

SMART CITY RATING

C

not in 2021

FACTOR RATINGS

CC

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

## City

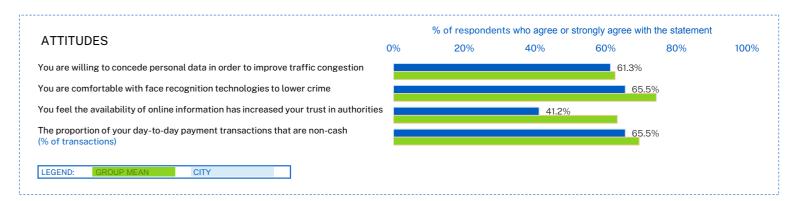
Population HDI 896,007 0.896

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.892  | 0.897  | 0.894  | 0.896  | +0.002      |
| Life expectancy at birth    | 81.4   | 81.4   | 81.4   | 81.2   | -0.2        |
| Expected years of schooling | 15.4   | 15.7   | 15.7   | 15.7   | +0.0        |
| Mean years of schooling     | 12.3   | 12.4   | 12.4   | 12.4   | +0.0        |
| GNI per capita (PPP \$)     | 38,544 | 39,568 | 36,519 | 38,188 | +1,669      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% road congestion From a list of 15 indicators, survey respondents affordable housing 51.3% were asked to select 5 that they perceived as the 45.4% corruption most urgent for their city. This is the total bar. The 45.4% security higher the percentage of responses per area, the 37.8% public transport greater the priority for the city. green spaces 34.5% school education 34.5% health services 32.8% The left-hand, dark blue section of each bar shows fulfilling employment the Alignment, i.e. the proportion of those unemployment 24.4% respondents who also answered the survey on the recycling 21.9% corresponding area by giving it low priority. A 17.6% citizen engagement strong Alignment (i.e. consistency across both 15 1% air pollution areas explained) means that these areas may 11.8% basic amenities benefit from close observation. social mobility 8.4%







98

Out of 141



90 out of 118 in 2021

SMART CITY RATING

B

CCC in 2021

FACTOR RATINGS

BB

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

2

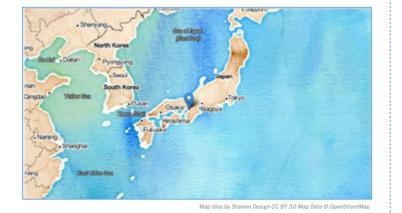
All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

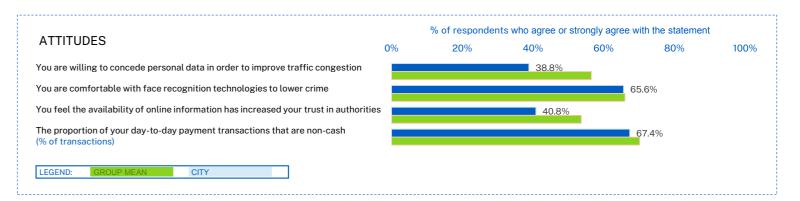
Population HDI 2,752,412 0.928

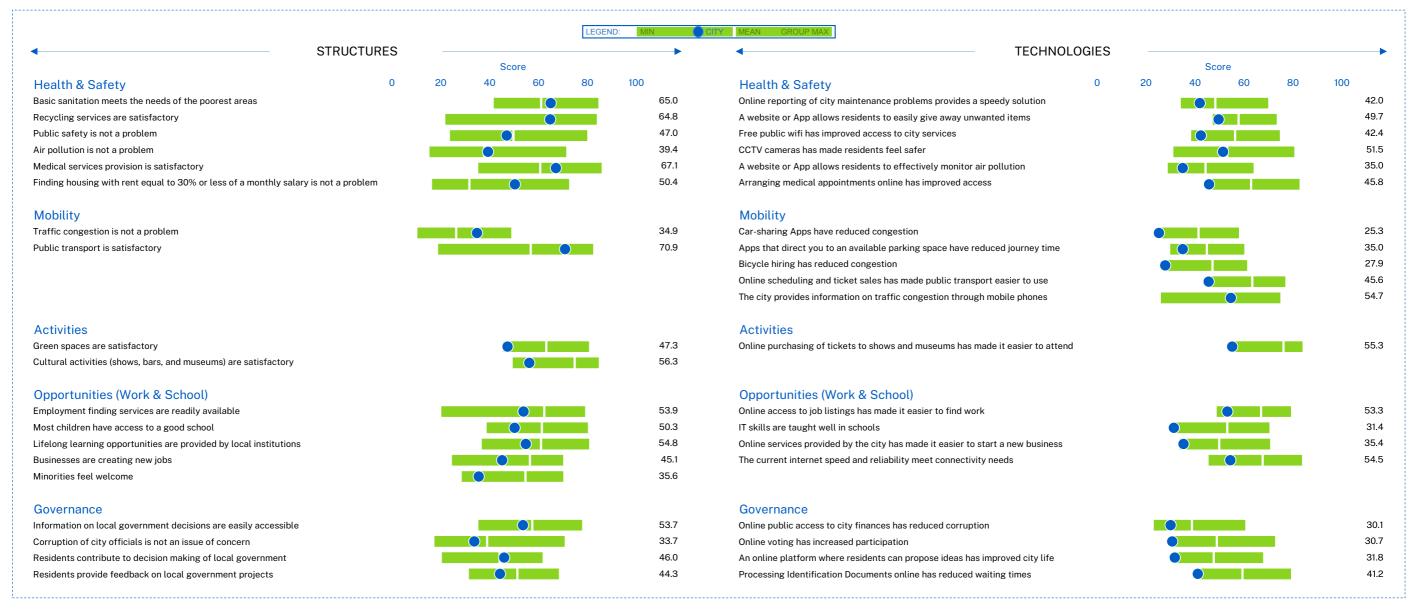
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.915  | 0.919  | 0.923  | 0.925  | +0.002      |
| Life expectancy at birth    | 84.5   | 84.6   | 84.7   | 84.8   | +0.1        |
| Expected years of schooling | 15.2   | 15.2   | 15.2   | 15.2   | +0.0        |
| Mean years of schooling     | 12.8   | 12.9   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 40,799 | 42,932 | 41,487 | 42,274 | +787        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% 49.1% health services From a list of 15 indicators, survey respondents basic amenities 49.1% were asked to select 5 that they perceived as the affordable housing 39.1% most urgent for their city. This is the total bar. The 38.3% security higher the percentage of responses per area, the fulfilling employment 36.0% greater the priority for the city. road congestion 33.2% school education 33.1% 27.6% The left-hand, dark blue section of each bar shows unemployment public transport 27.2% the Alignment, i.e. the proportion of those air pollution 23.1% respondents who also answered the survey on the 22.7% corruption corresponding area by giving it low priority. A 21.5% green spaces strong Alignment (i.e. consistency across both 19.5% citizen engagement areas explained) means that these areas may recycling 15.1% benefit from close observation. social mobility 14.2%







2

Out of 141

2 out of 118 in 2021

SMART CITY RATING

# AAA

AAA in 2021

FACTOR RATINGS



STRUCTURES

A

**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

## City

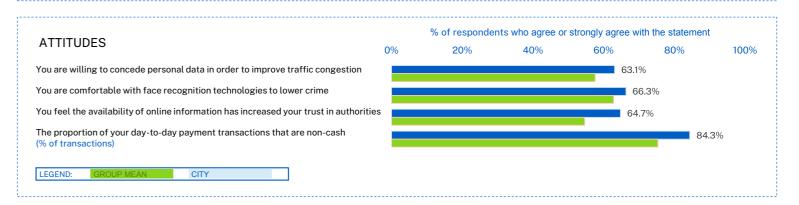
Population HDI 693,494 0.980

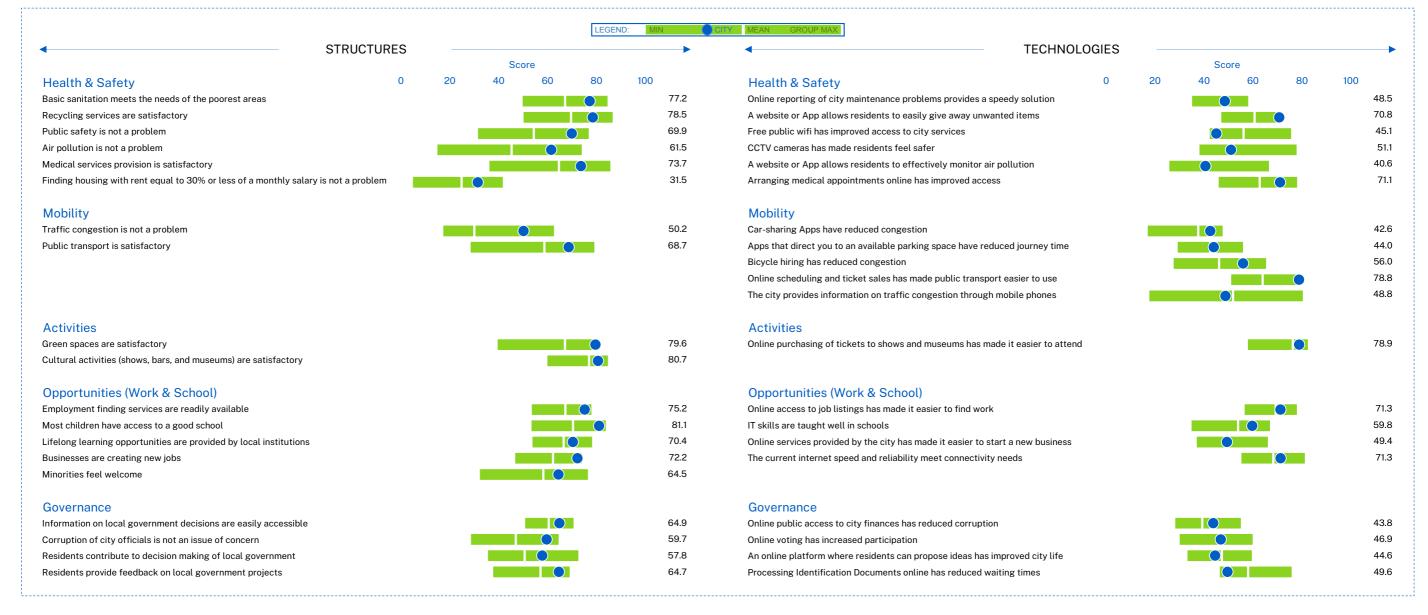
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.954  | 0.957  | 0.959  | 0.961  | +0.002      |
| Life expectancy at birth    | 82.3   | 82.4   | 83.2   | 83.2   | +0.0        |
| Expected years of schooling | 18.1   | 18.1   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.9   | 13.0   | 13.0   | +0.0        |
| GNI per capita (PPP \$)     | 68,059 | 66,494 | 62,573 | 64,660 | +2,087      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 20% 40% 100% affordable housing 73.9% From a list of 15 indicators, survey respondents 37.4% health services were asked to select 5 that they perceived as the 36.0% security most urgent for their city. This is the total bar. The 33.8% road congestion higher the percentage of responses per area, the unemployment 33.7% greater the priority for the city. public transport 32.9% social mobility 31.3% The left-hand, dark blue section of each bar shows air pollution 30.8% 24.2% school education the Alignment, i.e. the proportion of those basic amenities 18.5% respondents who also answered the survey on the 18.4% green spaces corresponding area by giving it low priority. A 18.1% corruption strong Alignment (i.e. consistency across both 17.8% citizen engagement areas explained) means that these areas may recycling 14.2% benefit from close observation. fulfilling employment 13.8%





# Ottawa

SMART CITY RANKING

40

Out of 141

not out of 118 in 2021

SMART CITY RATING



not in 2021

FACTOR RATINGS

AA

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

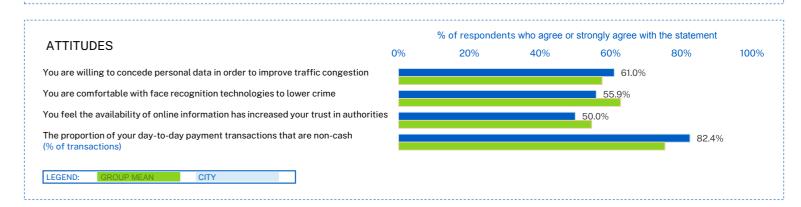
Population HDI 934,240 0.943

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.933  | 0.937  | 0.931  | 0.936  | +0.005      |
| Life expectancy at birth    | 82.1   | 82.4   | 82.1   | 82.7   | +0.6        |
| Expected years of schooling | 16.2   | 16.4   | 16.4   | 16.4   | +0.0        |
| Mean years of schooling     | 13.8   | 8.7    | 8.8    | 8.8    | +0.0        |
| GNI per capita (PPP \$)     | 18,371 | 18,486 | 18,754 | 19,974 | +1,220      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 83.1% From a list of 15 indicators, survey respondents 71.2% health services were asked to select 5 that they perceived as the public transport 55.9% most urgent for their city. This is the total bar. The 33.9% road congestion higher the percentage of responses per area, the unemployment 29.7% greater the priority for the city. security 27.1% school education 20.3% 19.5% The left-hand, dark blue section of each bar shows corruption fulfilling employment 19.5% the Alignment, i.e. the proportion of those basic amenities 18.6% respondents who also answered the survey on the 17.0% recycling corresponding area by giving it low priority. A social mobility 16.1% strong Alignment (i.e. consistency across both green spaces 13.6% areas explained) means that these areas may air pollution 13.6% benefit from close observation. citizen engagement 11.9%







46

Out of 141



49 out of 118 in 2021

SMART CITY RATING

**BBB** 

BBB in 2021

FACTOR RATINGS

BB

STRUCTURES

A

**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

### BACKGROUND INFORMATION

# City

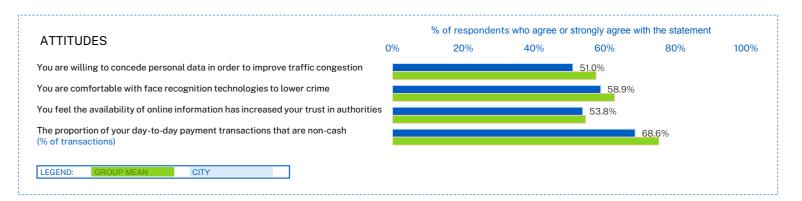
Population HDI 2,147,716 0.949

(Eurostat)



| Country<br>HDI              | 2018<br>0.891 | 2019<br>0.901 | 2020<br>0.898 | 2021<br>0.903 | 1 yr change<br>+0.005 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 82.5          | 82.7          | 82.2          | 82.5          | +0.3                  |
| Expected years of schooling | 15.5          | 15.6          | 15.8          | 15.8          | +0.0                  |
| Mean years of schooling     | 11.4          | 11.5          | 11.6          | 11.6          | +0.0                  |
| GNI per capita (PPP \$)     | 40,511        | 47,173        | 43,048        | 45,937        | +2,889                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 65.8% From a list of 15 indicators, survey respondents security 59.8% were asked to select 5 that they perceived as the air pollution 59.6% most urgent for their city. This is the total bar. The 44.6% road congestion higher the percentage of responses per area, the public transport 33.4% greater the priority for the city. 30.3% unemployment health services 28.6% 27.8% recycling The left-hand, dark blue section of each bar shows 20.2% green spaces the Alignment, i.e. the proportion of those basic amenities 20.1% respondents who also answered the survey on the fulfilling employment 15.5% corresponding area by giving it low priority. A 15.4% corruption strong Alignment (i.e. consistency across both 14.3% school education areas explained) means that these areas may social mobility 10.2% benefit from close observation. citizen engagement 10.0%





# Philadelphia

SMART CITY RANKING

92

Out of 141



85 out of 118 in 2021

SMART CITY RATING

B

B in 2021

FACTOR RATINGS

B

STRUCTURES

B

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

Population HDI 1,603,797 0.923

(UN Data)

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI



13.7

61,462

2018

78.9

16.3

13.4

56,140

2019

0.926

78.9

16.3

13.4

63.826

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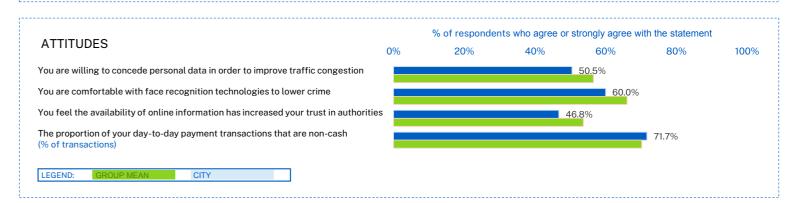
13.7

64,765

+0.0

+3.304

% of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 65.9% From a list of 15 indicators, survey respondents security 62.5% were asked to select 5 that they perceived as the school education 45.9% most urgent for their city. This is the total bar. The 37.8% road congestion higher the percentage of responses per area, the unemployment 34.9% greater the priority for the city. health services 33.9% corruption 33.4% fulfilling employment The left-hand, dark blue section of each bar shows 26.8% air pollution the Alignment, i.e. the proportion of those basic amenities 22.5% respondents who also answered the survey on the green spaces 21.8% corresponding area by giving it low priority. A 19.9% public transport strong Alignment (i.e. consistency across both 17.4% recycling areas explained) means that these areas may citizen engagement 11.0% benefit from close observation. social mobility 8.4%





# Phoenix

SMART CITY RANKING

93

Out of 141



77 out of 118 in 2021

SMART CITY RATING

CC

CC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

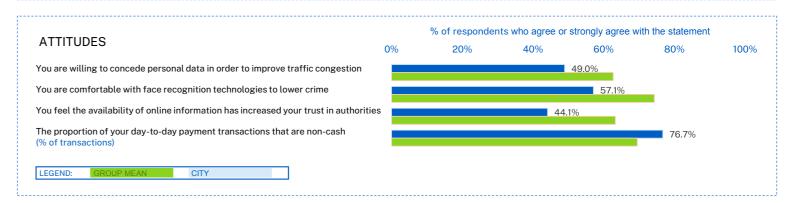
Population HDI 1,608,139 0.908

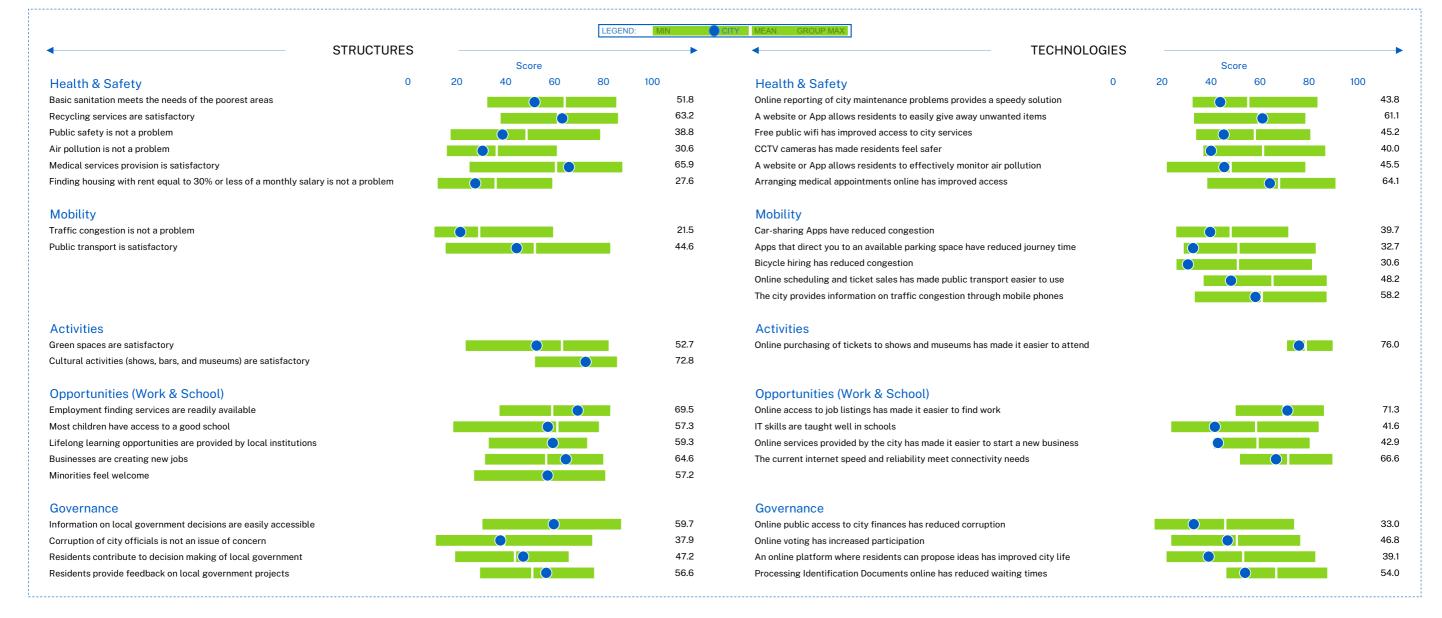
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 77.8% From a list of 15 indicators, survey respondents road congestion 47.2% were asked to select 5 that they perceived as the air pollution 45.2% most urgent for their city. This is the total bar. The 38.3% school education higher the percentage of responses per area, the unemployment 38.1% greater the priority for the city. security 37.2% health services 33.9% fulfilling employment 26.6% The left-hand, dark blue section of each bar shows 26.5% basic amenities the Alignment, i.e. the proportion of those corruption 25.7% respondents who also answered the survey on the recycling 20.3% corresponding area by giving it low priority. A public transport 18.9% strong Alignment (i.e. consistency across both citizen engagement 12 0% areas explained) means that these areas may green spaces 9.7% benefit from close observation. social mobility 8.3%





# Prague

SMART CITY RANKING

14

Out of 141



10 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

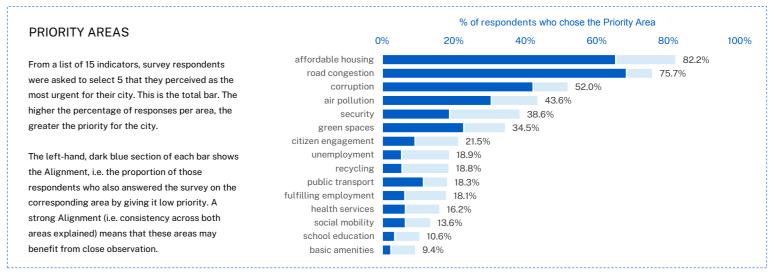
# City

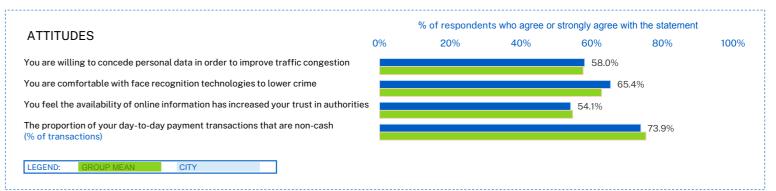
Population HDI 1,335,084 0.960

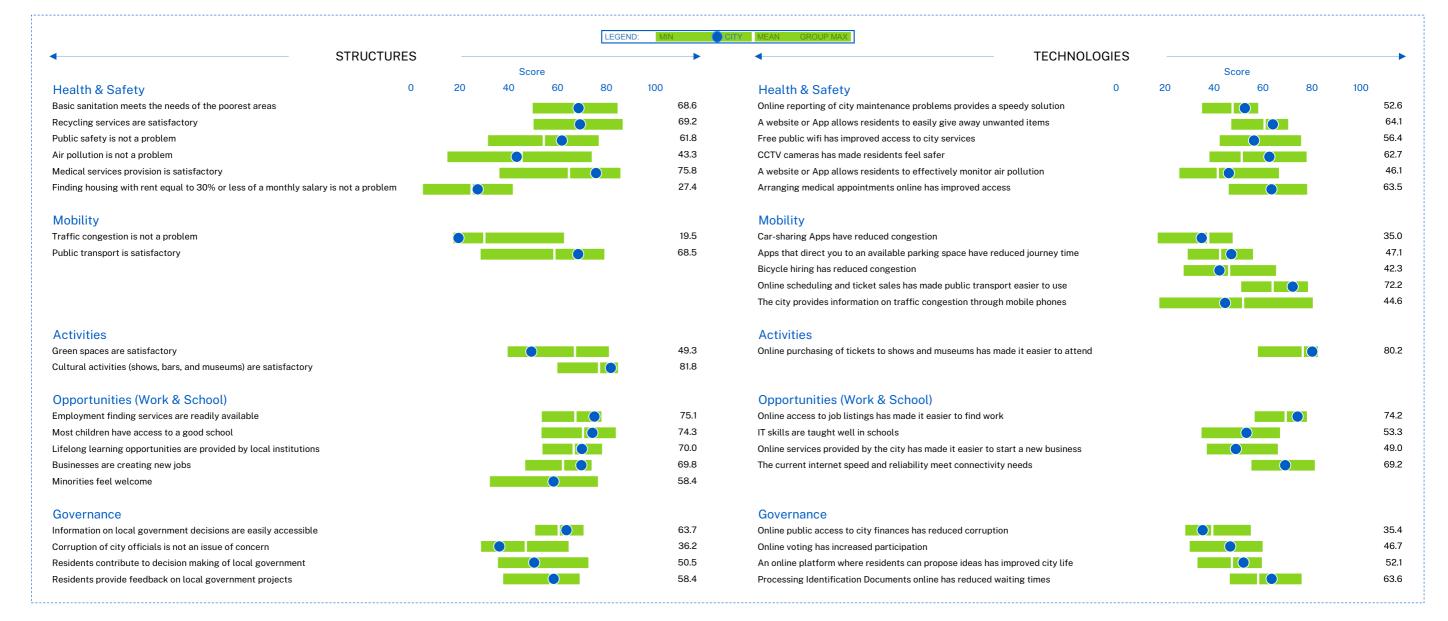
(Eurostat)



| Country  | 2018<br>0.891 | 2019         | 2020<br>0.892 | 2021<br>0.889 | 1 yr change  |
|--|---------------|--------------|---------------|---------------|--------------|
| Life expectancy at birth                             | 79.2          | 79.4         | 78.6          | 77.7          | -0.8         |
| Expected years of schooling  Mean years of schooling | 16.8<br>12.7  | 16.8<br>12.7 | 16.2<br>12.9  | 16.2<br>12.9  | +0.0<br>+0.0 |
| GNI per capita (PPP \$)                              | 31,597        | 38,109       | 37,551        | 38,745        | +1,194       |









**126** 

Out of 141



109 out of 118 in 2021

**SMART CITY RATING** 

C in 2021

**FACTOR RATINGS** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

# City

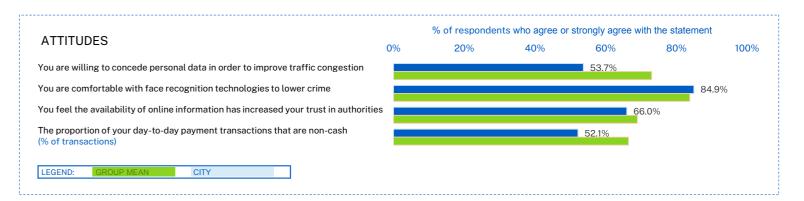
Population HDI 193,193 0.702

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.676 | 0.686 | 0.679 | 0.683 | +0.004      |
| Life expectancy at birth    | 76.5  | 76.7  | 73.9  | 74.0  | +0.1        |
| Expected years of schooling | 13.1  | 13.7  | 14.2  | 14.2  | +0.0        |
| Mean years of schooling     | 5.5   | 5.6   | 5.9   | 5.9   | +0.0        |
| GNI per capita (PPP \$)     | 7,480 | 7,368 | 6,882 | 7,303 | +421        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 65.4% unemployment From a list of 15 indicators, survey respondents 57.4% health services were asked to select 5 that they perceived as the affordable housing 56.6% most urgent for their city. This is the total bar. The 48.8% corruption higher the percentage of responses per area, the school education 39.3% greater the priority for the city. 32.9% security road congestion 27.4% fulfilling employment 26.1% The left-hand, dark blue section of each bar shows air pollution 24.6% the Alignment, i.e. the proportion of those basic amenities 22.3% respondents who also answered the survey on the 21.2% public transport corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both green spaces 15 1% areas explained) means that these areas may citizen engagement 14.2% benefit from close observation. social mobility 10.7%





# Reykjavik

SMART CITY RANKING

**26** 

Out of 141

not out of 118 in 2021

SMART CITY RATING

**BBB** 

not in 2021

FACTOR RATINGS

A

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

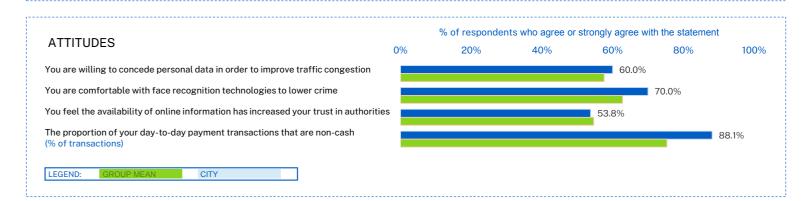
Population HDI 236,528 0.959

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.959  | 0.960  | 0.957  | 0.959  | +0.002      |
| Life expectancy at birth    | 82.8   | 82.4   | 82.6   | 82.7   | +0.1        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 13.6   | 13.7   | 13.8   | 13.8   | +0.0        |
| GNI per capita (PPP \$)     | 56.492 | 58.055 | 54.141 | 55.782 | +1.641      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 90.0% From a list of 15 indicators, survey respondents health services 71.3% were asked to select 5 that they perceived as the public transport 53.8% most urgent for their city. This is the total bar. The school education 32.5% higher the percentage of responses per area, the 31.3% corruption greater the priority for the city. road congestion 28.8% basic amenities 28.8% 27.5% The left-hand, dark blue section of each bar shows security recycling 21.3% the Alignment, i.e. the proportion of those green spaces 20.0% respondents who also answered the survey on the air pollution 20.0% corresponding area by giving it low priority. A social mobility 16.3% strong Alignment (i.e. consistency across both 15.0% fulfilling employment areas explained) means that these areas may citizen engagement 12.5% benefit from close observation. unemployment 12.5%







83

Out of 141

not out of 118 in 2021

SMART CITY RATING

B

not in 2021

FACTOR RATINGS

B

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

## BACKGROUND INFORMATION

## City

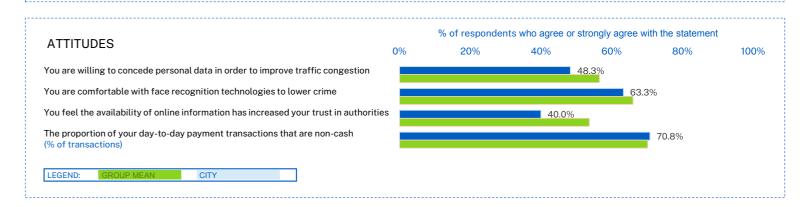
Population HDI 614,618 0.929

(Eurostat)



| Country   | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|---|--------|--------|--------|--------|-------------|
| HDI   | 0.866  | 0.871  | 0.871  | 0.863  | -0.008      |
| Life expectancy at birth  Expected years of schooling | 75.0   | 75.5   | 75.5   | 73.6   | -1.9        |
|   | 16.2   | 16.2   | 16.2   | 16.2   | +0.0        |
| Mean years of schooling GNI per capita (PPP \$)       | 13.2   | 13.3   | 13.3   | 13.3   | +0.0        |
|   | 29,895 | 31,059 | 31,102 | 32,803 | +1,701      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 70.0% From a list of 15 indicators, survey respondents 60.0% corruption were asked to select 5 that they perceived as the road congestion 53.3% most urgent for their city. This is the total bar. The 45.0% unemployment higher the percentage of responses per area, the 33.3% school education greater the priority for the city. public transport 31.7% security 28.3% The left-hand, dark blue section of each bar shows citizen engagement 23.3% air pollution 21.7% the Alignment, i.e. the proportion of those basic amenities 21.7% respondents who also answered the survey on the green spaces 20.0% corresponding area by giving it low priority. A social mobility 20.0% strong Alignment (i.e. consistency across both fulfilling employment 20.0% areas explained) means that these areas may health services 11.7% benefit from close observation. recycling 8.3%





# Rio de Janeiro

**SMART** CITY **RANKING** 

136

Out of 141



118 out of 118 in 2021

**SMART CITY RATING** 

D in 2021

**FACTOR RATINGS** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

## **BACKGROUND INFORMATION**

## City

HDI Population 13,634,274 0.783

(UN World Urbanisation Prospects 2022 estimate)

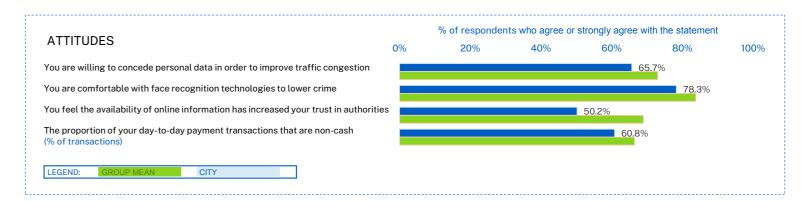


| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.764  | 0.766  | 0.758  | 0.754  | -0.004      |
| Life expectancy at birth    | 75.1   | 75.3   | 74.0   | 72.8   | -1.3        |
| Expected years of schooling | 15.7   | 15.6   | 15.6   | 15.6   | +0.0        |
| Mean years of schooling     | 8.0    | 10.6   | 10.9   | 10.9   | +0.0        |
| GNI per capita (PPP \$)     | 21,972 | 23,261 | 22,286 | 24,563 | +2,277      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 100% security From a list of 15 indicators, survey respondents health services 73.4% were asked to select 5 that they perceived as the public transport 53.0% most urgent for their city. This is the total bar. The 52.3% unemployment higher the percentage of responses per area, the school education 46.6% greater the priority for the city. basic amenities 34.9% corruption 34.4% affordable housing The left-hand, dark blue section of each bar shows 26.1% fulfilling employment 25.0% the Alignment, i.e. the proportion of those social mobility respondents who also answered the survey on the 13.7% road congestion corresponding area by giving it low priority. A air pollution 10.0% strong Alignment (i.e. consistency across both recycling 7.5%

green spaces 5.4%

citizen engagement 4.6%





areas explained) means that these areas may

benefit from close observation.

# Riyadh

SMART CITY RANKING

30

Out of 141



39 out of 118 in 2021

SMART CITY RATING

BB

B in 2021

FACTOR RATINGS

B

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

Country

Life expectancy at birth

Mean years of schooling

GNI per capita (PPP \$)

Expected years of schooling

HDI

Population HDI 75,382 0.900

(UN World Urbanisation Prospects 2022 estimate)



| 1 yr change | 2021  | 2020  | 2019  | 2018  |
|-------------|-------|-------|-------|-------|
| +0.005      | 0.875 | 0.870 | 0.873 | 0.865 |
| +0.7        | 76.9  | 76.2  | 77.3  | 77.2  |
| +0.0        | 16.1  | 16.1  | 16.0  | 15.7  |
| +0.0        | 8.3   | 8.3   | 8.3   | 10.6  |

5,601

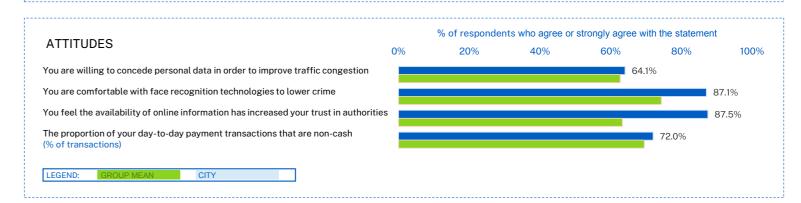
5,072

5.307

5,745

+143

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 61.5% From a list of 15 indicators, survey respondents road congestion 56.4% were asked to select 5 that they perceived as the 33.4% green spaces most urgent for their city. This is the total bar. The 32.2% public transport higher the percentage of responses per area, the health services 31.4% greater the priority for the city. unemployment 31.0% air pollution 30.1% 29.7% The left-hand, dark blue section of each bar shows basic amenities recycling 28.7% the Alignment, i.e. the proportion of those fulfilling employment 28.6% respondents who also answered the survey on the 24.6% security corresponding area by giving it low priority. A school education 20.6% strong Alignment (i.e. consistency across both corruption 17.8% areas explained) means that these areas may social mobility 13.9% benefit from close observation. citizen engagement 8.4%







122

Out of 141



111 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

### **BACKGROUND INFORMATION**

# City

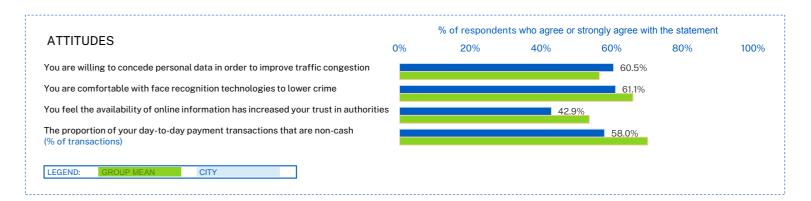
Population HDI 5,730,399 0.917

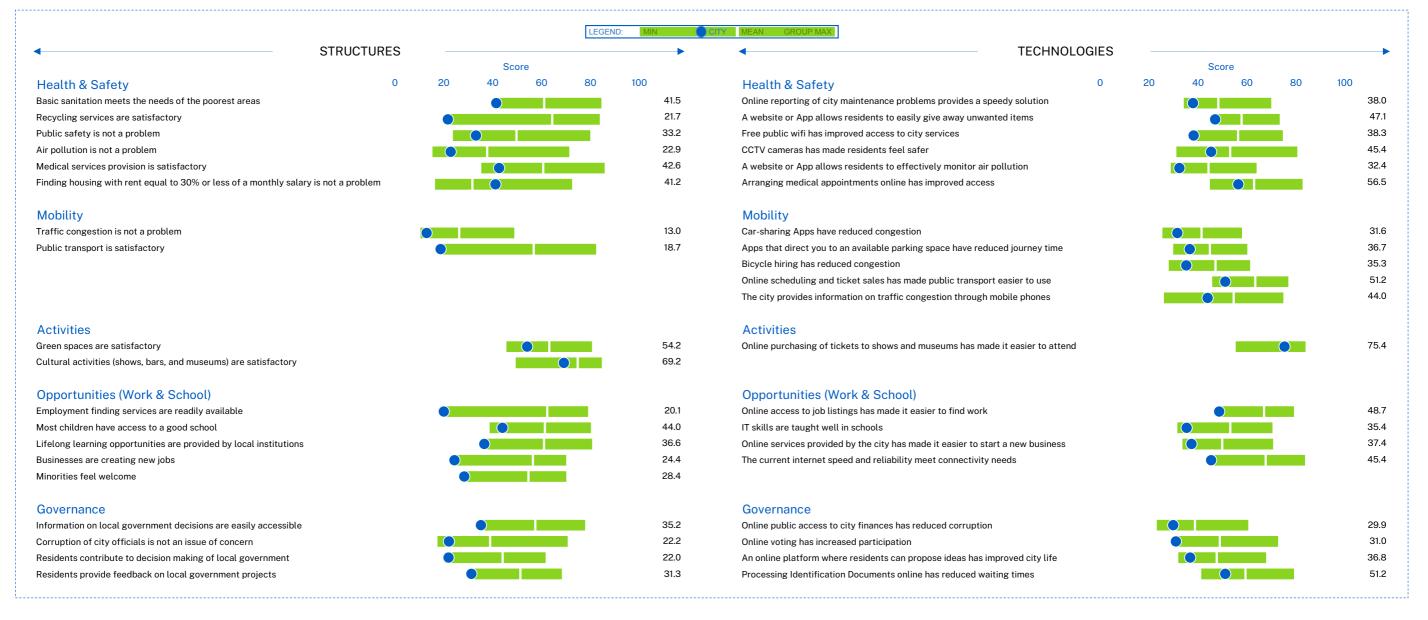
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.883  | 0.892  | 0.889  | 0.895  | +0.006      |
| Life expectancy at birth    | 83.4   | 83.5   | 82.4   | 82.9   | +0.4        |
| Expected years of schooling | 16.2   | 16.1   | 16.2   | 16.2   | +0.0        |
| Mean years of schooling     | 10.2   | 10.4   | 10.7   | 10.7   | +0.0        |
| GNI per capita (PPP \$)     | 36,141 | 42,776 | 39,901 | 42,840 | +2,939      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% recycling 69.4% From a list of 15 indicators, survey respondents public transport were asked to select 5 that they perceived as the road congestion 54.8% most urgent for their city. This is the total bar. The 46.4% basic amenities higher the percentage of responses per area, the 46.1% air pollution greater the priority for the city. 43.2% security 40.7% fulfilling employment The left-hand, dark blue section of each bar shows 26.5% 25.8% corruption the Alignment, i.e. the proportion of those affordable housing 21.5% respondents who also answered the survey on the 11.6% social mobility corresponding area by giving it low priority. A 10.9% green spaces strong Alignment (i.e. consistency across both 10.1% school education areas explained) means that these areas may health services 9.8% benefit from close observation. citizen engagement 7.6%





### Rotterdam

SMART CITY RANKING

41

Out of 141



43 out of 118 in 2021

SMART CITY RATING



BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES



TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

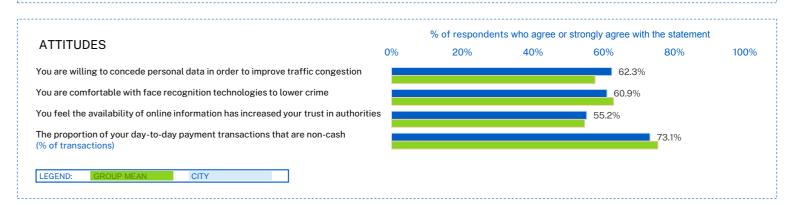
Population HDI 3,726,050 0.941

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.934  | 0.944  | 0.939  | 0.941  | +0.002      |
| Life expectancy at birth    | 82.1   | 82.3   | 81.6   | 81.7   | +0.0        |
| Expected years of schooling | 18.0   | 18.5   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.2   | 12.4   | 12.6   | 12.6   | +0.0        |
| GNI per capita (PPP \$)     | 50,013 | 57,707 | 53,504 | 55,979 | +2,476      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 73.0% From a list of 15 indicators, survey respondents 62.3% security were asked to select 5 that they perceived as the 39.8% unemployment most urgent for their city. This is the total bar. The health services 37.4% higher the percentage of responses per area, the air pollution 32.2% greater the priority for the city. road congestion 30.3% basic amenities 30.3% 26.9% The left-hand, dark blue section of each bar shows school education 25.2% green spaces the Alignment, i.e. the proportion of those public transport 23.5% respondents who also answered the survey on the recycling 19.6% corresponding area by giving it low priority. A citizen engagement 18.1% strong Alignment (i.e. consistency across both fulfilling employment 14 8% areas explained) means that these areas may social mobility 14.7% benefit from close observation. corruption 13.0%





### San Francisco

SMART CITY RANKING

**68** 

Out of 141



54 out of 118 in 2021

SMART CITY RATING

BB

B in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

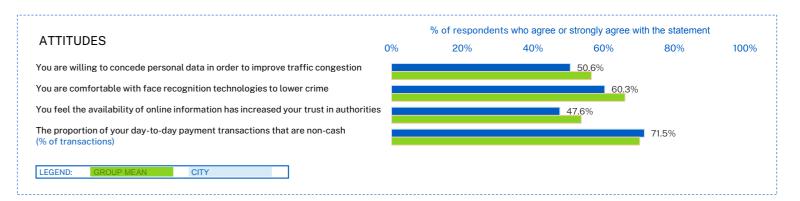
Population HDI 873,965 0.931

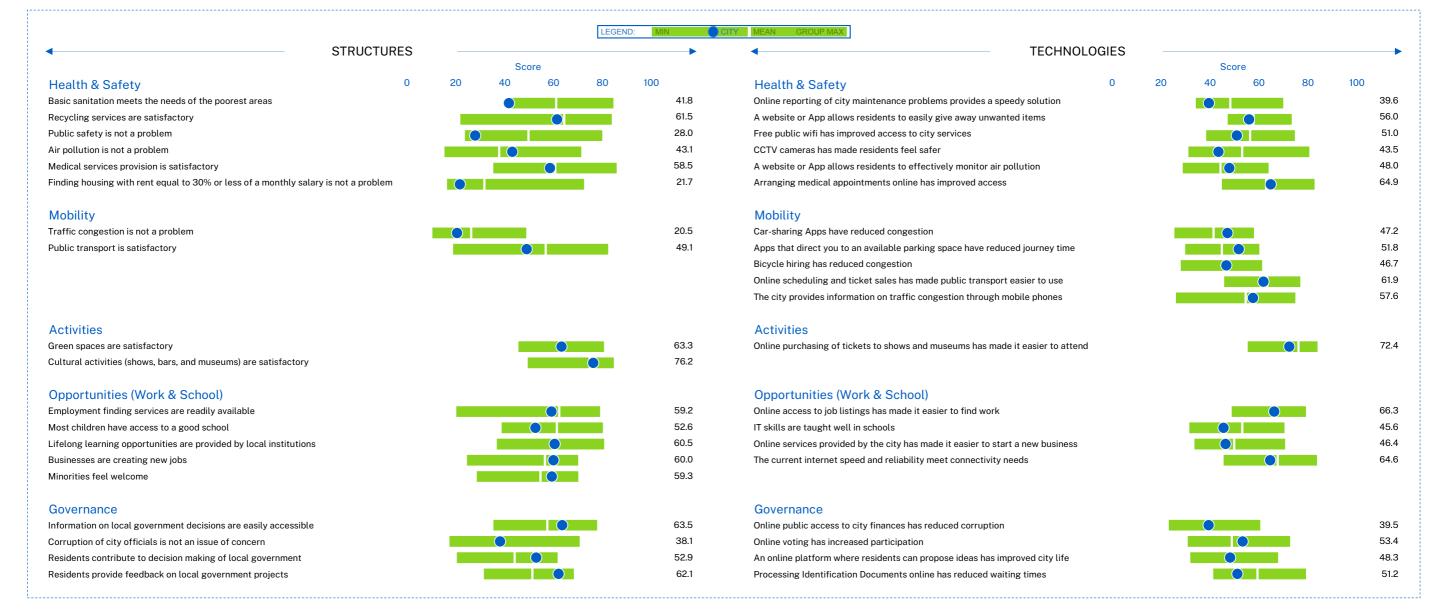
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 82.3% From a list of 15 indicators, survey respondents security 53.7% were asked to select 5 that they perceived as the road congestion 49.7% most urgent for their city. This is the total bar. The health services 41.2% higher the percentage of responses per area, the 35.0% unemployment greater the priority for the city. school education 28.8% corruption 27.3% fulfilling employment 23.3% The left-hand, dark blue section of each bar shows air pollution 22.3% the Alignment, i.e. the proportion of those public transport 22.2% respondents who also answered the survey on the basic amenities 21.3% corresponding area by giving it low priority. A social mobility strong Alignment (i.e. consistency across both recycling 13 3% areas explained) means that these areas may green spaces 13.3% benefit from close observation. citizen engagement





### San José

SMART CITY RANKING

127

Out of 141



112 out of 118 in 2021

SMART CITY RATING

C

D in 2021

FACTOR RATINGS

CC

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

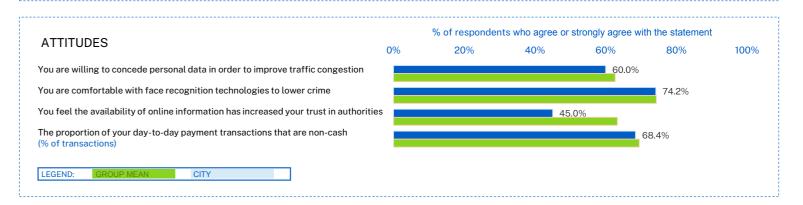
Population HDI 351,958 0.826

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.811  | 0.819  | 0.816  | 0.809  | -0.007      |
| Life expectancy at birth    | 79.5   | 79.4   | 79.3   | 77.0   | -2.3        |
| Expected years of schooling | 15.9   | 16.6   | 16.6   | 16.6   | +0.0        |
| Mean years of schooling     | 8.7    | 12.8   | 12.9   | 12.9   | +0.0        |
| GNI per capita (PPP \$)     | 41,779 | 48,511 | 47,946 | 49,452 | +1,506      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security From a list of 15 indicators, survey respondents 65.3% corruption were asked to select 5 that they perceived as the 64.0% unemployment most urgent for their city. This is the total bar. The 55.5% road congestion higher the percentage of responses per area, the affordable housing 39.5% greater the priority for the city. fulfilling employment 38.5% health services 28.8% The left-hand, dark blue section of each bar shows basic amenities 19.0% public transport the Alignment, i.e. the proportion of those air pollution respondents who also answered the survey on the citizen engagement 15.0% corresponding area by giving it low priority. A recycling 15.0% strong Alignment (i.e. consistency across both 13.0% school education areas explained) means that these areas may social mobility 12.0% benefit from close observation. green spaces 8.5%





### Sana'a

SMART CITY RANKING

140

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

D

**TECHNOLOGIES** 

**GROUP** 

4

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 3,181,655 0.521

(UN World Urbanisation Prospects 2022 estimate)

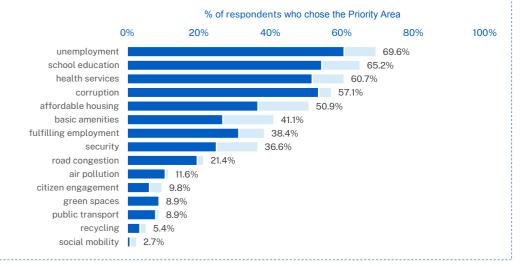


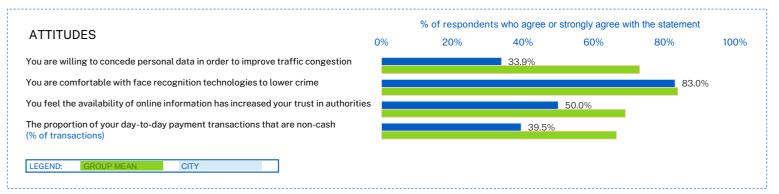
| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.459 | 0.461 | 0.460 | 0.455 | -0.005      |
| Life expectancy at birth    | 64.6  | 65.1  | 64.7  | 63.8  | -0.9        |
| Expected years of schooling | 9.1   | 9.1   | 9.1   | 9.1   | +0.0        |
| Mean years of schooling     | 3.2   | 3.2   | 3.2   | 3.2   | +0.0        |
| GNI per capita (PPP \$)     | 1,342 | 1,350 | 1,371 | 1,314 | -56         |

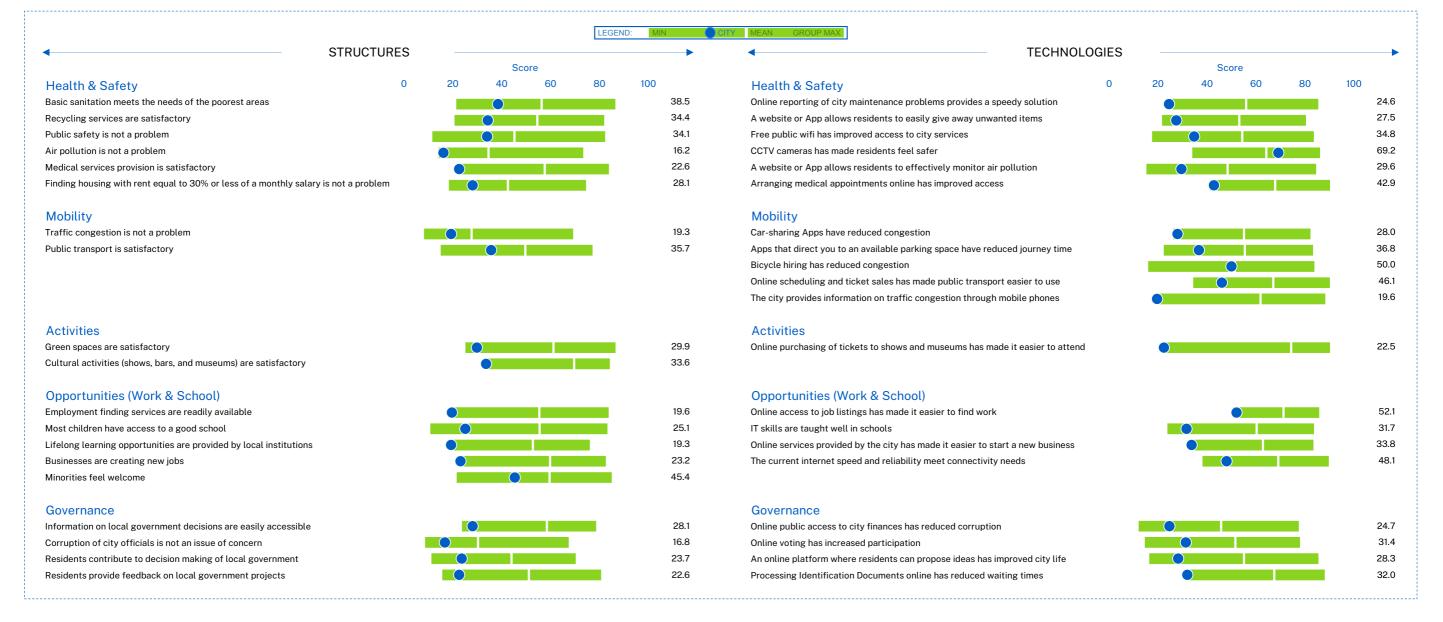
#### PRIORITY AREAS

From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.







# Santiago

SMART CITY RANKING

119

Out of 141



107 out of 118 in 2021

SMART CITY RATING

C

C in 2021

FACTOR RATINGS

C

STRUCTURES

C

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

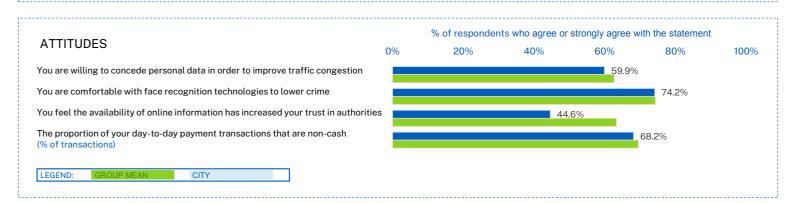
Population HDI 527,014 0.886

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.847  | 0.851  | 0.852  | 0.855  | +0.003      |
| Life expectancy at birth    | 80.0   | 80.2   | 79.4   | 78.9   | -0.4        |
| Expected years of schooling | 16.5   | 16.4   | 16.7   | 16.7   | +0.0        |
| Mean years of schooling     | 10.4   | 10.6   | 10.9   | 10.9   | +0.0        |
| GNI per capita (PPP \$)     | 21,972 | 23,261 | 22,286 | 24,563 | +2,277      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security From a list of 15 indicators, survey respondents health services 61.9% were asked to select 5 that they perceived as the affordable housing 50.3% most urgent for their city. This is the total bar. The 37.3% unemployment higher the percentage of responses per area, the fulfilling employment 36.7% greater the priority for the city. air pollution 36.6% corruption 33.7% 28.3% The left-hand, dark blue section of each bar shows school education public transport 26.9% the Alignment, i.e. the proportion of those basic amenities 25.0% respondents who also answered the survey on the recycling 18.2% corresponding area by giving it low priority. A 17.5% green spaces strong Alignment (i.e. consistency across both 14 9% social mobility areas explained) means that these areas may road congestion benefit from close observation. citizen engagement 9.5%





### Sao Paulo

SMART CITY RANKING

130

Out of 141



117 out of 118 in 2021

SMART CITY RATING

D

D in 2021

FACTOR RATINGS



STRUCTURES

C

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 22,429,799 0.780

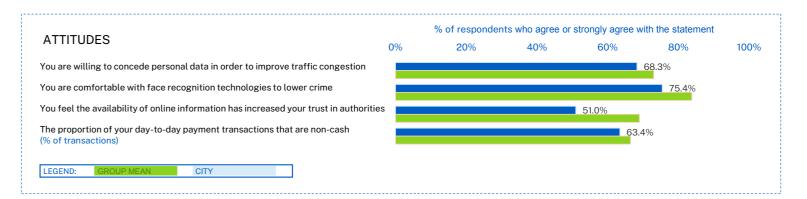
(UN World Urbanisation Prospects 2022 estimate)



| lap tiles by Stamen Design CC B | BY 3.0 Map Data © OpenStreetMa |
|---------------------------------|--------------------------------|
|---------------------------------|--------------------------------|

| Country<br>HDI              | 2018<br>0.764 | 2019<br>0.766 | 2020<br>0.758 | 2021<br>0.754 | 1 yr change<br>-0.004 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 75.1          | 75.3          | 74.0          | 72.8          | -1.3                  |
| Expected years of schooling | 15.7          | 15.6          | 15.6          | 15.6          | +0.0                  |
| Mean years of schooling     | 8.0           | 10.6          | 10.9          | 10.9          | +0.0                  |
| GNI per capita (PPP \$)     | 21,972        | 23,261        | 22,286        | 24,563        | +2,277                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% security 73.7% From a list of 15 indicators, survey respondents health services 66.8% were asked to select 5 that they perceived as the 50.8% unemployment most urgent for their city. This is the total bar. The 42.0% public transport higher the percentage of responses per area, the 38.8% school education greater the priority for the city. 31.8% corruption affordable housing 30.9% 28.8% The left-hand, dark blue section of each bar shows basic amenities air pollution 28.2% the Alignment, i.e. the proportion of those fulfilling employment 26.5% respondents who also answered the survey on the road congestion 23.9% corresponding area by giving it low priority. A social mobility strong Alignment (i.e. consistency across both 13.0% green spaces areas explained) means that these areas may recycling 11.3% benefit from close observation. citizen engagement 5.3%





# Seattle

SMART CITY RANKING

**55** 

Out of 141



38 out of 118 in 2021

SMART CITY RATING

BB

BBB in 2021

FACTOR RATINGS

BB

STRUCTURES

B

**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 737,015 0.940

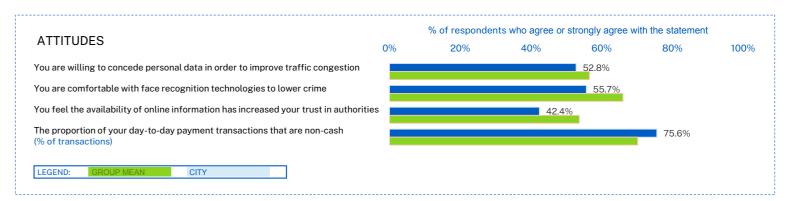
(UN Data)



| Map tiles by | Stamen Design | CC BY 3.0 | Map Data | @ OpenStreetMa |
|--------------|---------------|-----------|----------|----------------|
|--------------|---------------|-----------|----------|----------------|

| Country<br>HDI              | 2018<br>0.920 | 2019<br>0.926 | 2020<br>0.920 | 2021<br>0.921 | 1 yr change<br>+0.001 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 78.9          | 78.9          | 77.4          | 77.2          | -0.2                  |
| Expected years of schooling | 16.3          | 16.3          | 16.3          | 16.3          | +0.0                  |
| Mean years of schooling     | 13.4          | 13.4          | 13.7          | 13.7          | +0.0                  |
| GNI per capita (PPP \$)     | 56,140        | 63,826        | 61,462        | 64,765        | +3,304                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 81.2% From a list of 15 indicators, survey respondents road congestion 60.2% were asked to select 5 that they perceived as the 55.2% security most urgent for their city. This is the total bar. The 39.6% unemployment higher the percentage of responses per area, the health services 39.4% greater the priority for the city. school education 28.2% fulfilling employment 26.2% public transport 23.5% The left-hand, dark blue section of each bar shows corruption the Alignment, i.e. the proportion of those basic amenities respondents who also answered the survey on the air pollution 16.2% corresponding area by giving it low priority. A 15.5% green spaces strong Alignment (i.e. consistency across both recycling 15.3% areas explained) means that these areas may citizen engagement 13.8% benefit from close observation. social mobility 12.3%







16

Out of 141



18 out of 118 in 2021

SMART CITY RATING

AA

AA in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

AAA

TECHNOLOGIES

**GROUP** 

1

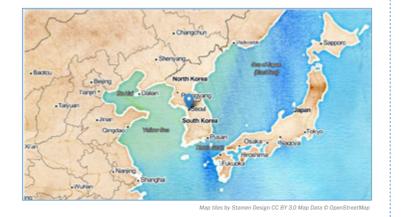
All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

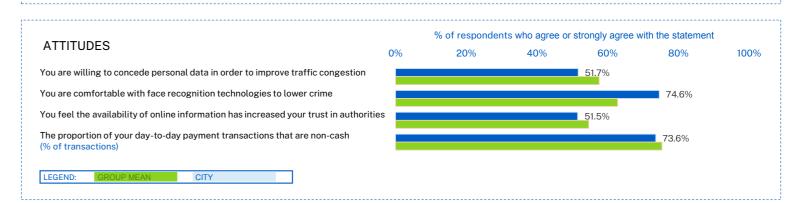
Population HDI 9,601,693 0.952

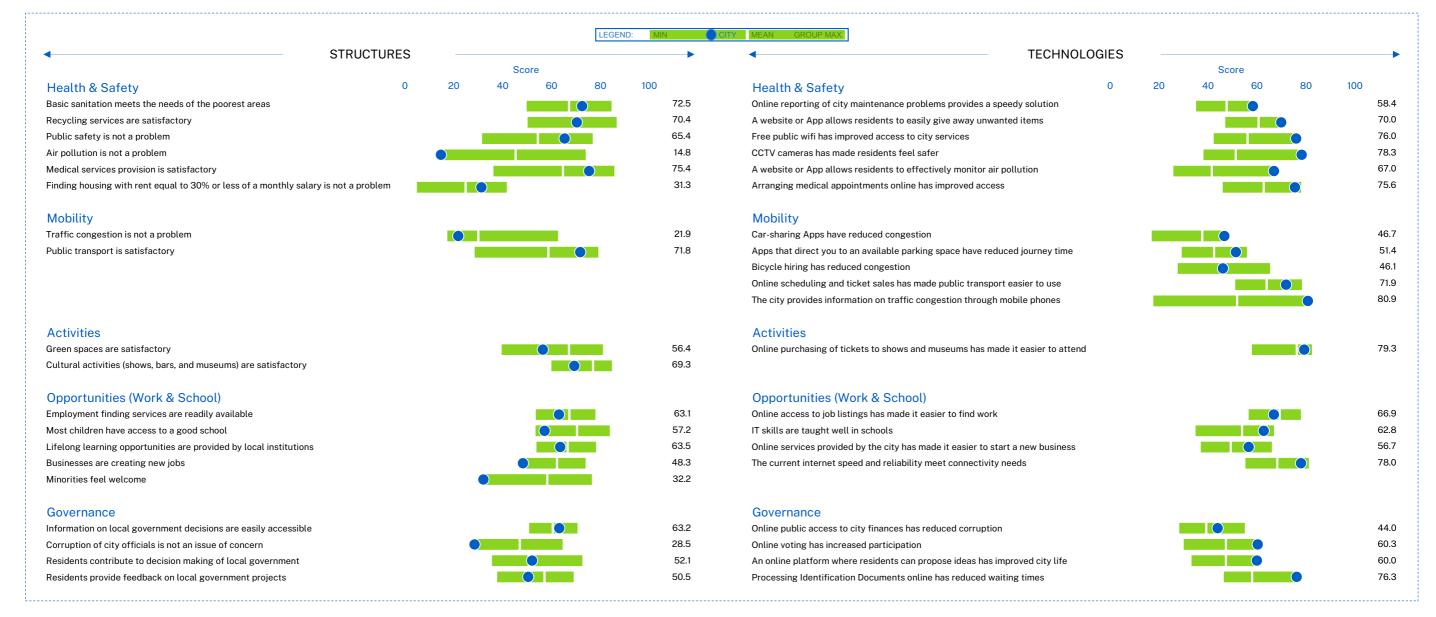
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.906  | 0.916  | 0.922  | 0.925  | +0.003      |
| Life expectancy at birth    | 82.8   | 83.0   | 83.6   | 83.7   | +0.1        |
| Expected years of schooling | 16.4   | 16.5   | 16.5   | 16.5   | +0.0        |
| Mean years of schooling     | 12.2   | 12.2   | 12.5   | 12.5   | +0.0        |
| GNI per capita (PPP \$)     | 36,757 | 43,044 | 42,698 | 44,501 | +1,803      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% air pollution From a list of 15 indicators, survey respondents affordable housing 57.8% were asked to select 5 that they perceived as the fulfilling employment 49.0% most urgent for their city. This is the total bar. The 43.2% unemployment higher the percentage of responses per area, the 41.8% corruption greater the priority for the city. road congestion 41.3% security 31.3% 28.5% The left-hand, dark blue section of each bar shows basic amenities 24.0% public transport the Alignment, i.e. the proportion of those recycling 22.6% respondents who also answered the survey on the 16.0% health services corresponding area by giving it low priority. A 14.7% green spaces strong Alignment (i.e. consistency across both 11.7% school education areas explained) means that these areas may social mobility 10.4% benefit from close observation. citizen engagement 6.9%





# Shanghai

SMART CITY RANKING

**25** 

Out of 141



32 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

Population HDI 28,516,903 0.880

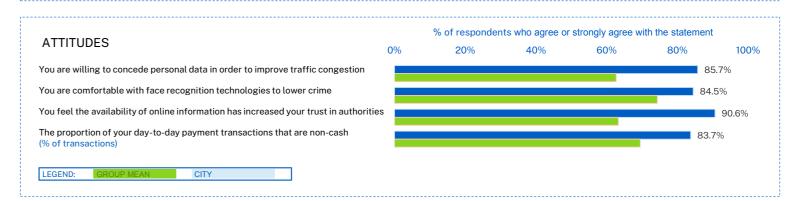
(UN World Urbanisation Prospects 2022 estimate)



| Map tiles by S | Stamen Design | CC BY 3.0 | Map Data @ | ∂ OpenStreet |
|----------------|---------------|-----------|------------|--------------|
|----------------|---------------|-----------|------------|--------------|

| Country<br>HDI              | 2018<br>0.758 | 2019<br>0.761 | 2020<br>0.764 | 2021<br>0.768 | 1 yr change<br>+0.004 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 76.7          | 76.9          | 78.1          | 78.2          | +0.1                  |
| Expected years of schooling | 13.9          | 14.0          | 14.2          | 14.2          | +0.0                  |
| Mean years of schooling     | 7.9           | 8.1           | 7.6           | 7.6           | +0.0                  |
| GNI per capita (PPP \$)     | 16,127        | 16,057        | 16,201        | 17,504        | +1,303                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% road congestion From a list of 15 indicators, survey respondents affordable housing 44.5% were asked to select 5 that they perceived as the air pollution 44.1% most urgent for their city. This is the total bar. The fulfilling employment 38.2% higher the percentage of responses per area, the basic amenities 34.1% greater the priority for the city. health services 33.6% social mobility 32.3% The left-hand, dark blue section of each bar shows corruption 28.3% public transport 25.0% the Alignment, i.e. the proportion of those unemployment 23.1% respondents who also answered the survey on the school education 20.0% corresponding area by giving it low priority. A 19.9% strong Alignment (i.e. consistency across both 15.5% recycling areas explained) means that these areas may green spaces 15.0% benefit from close observation. citizen engagement





### Shenzhen

SMART CITY RANKING

66

Out of 141



60 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

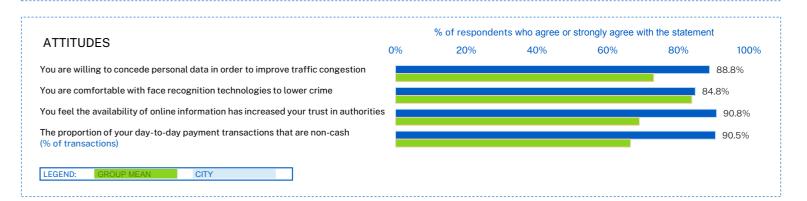
Population HDI 1,283,133 0.799

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents fulfilling employment 46.9% were asked to select 5 that they perceived as the road congestion 44.0% most urgent for their city. This is the total bar. The 39.9% air pollution higher the percentage of responses per area, the 38.3% social mobility greater the priority for the city. corruption 35.9% health services 33.7% citizen engagement 28.8% The left-hand, dark blue section of each bar shows unemployment 23.7% the Alignment, i.e. the proportion of those basic amenities 23.7% respondents who also answered the survey on the school education 22.1% corresponding area by giving it low priority. A public transport 17.7% strong Alignment (i.e. consistency across both security 16.2% areas explained) means that these areas may recycling 14.4% benefit from close observation. green spaces 11.6%





# Singapore

SMART CITY RANKING

7

Out of 141

7 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

2

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

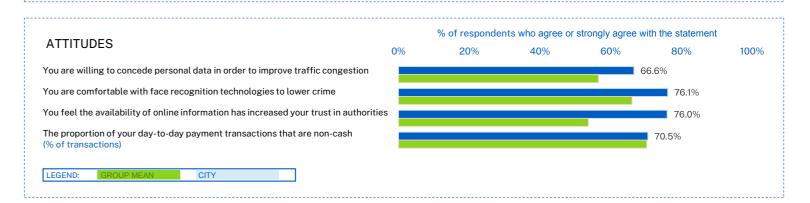
Population HDI 5,453,566 0.939

(UN Data)



| Country<br>HDI              | 2018<br>0.935 | 2019<br>0.938 | 2020<br>0.939 | 2021<br>0.939 | 1 yr change<br>+0.000 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 83.5          | 83.6          | 82.9          | 82.8          | -0.1                  |
| Expected years of schooling | 16.3          | 16.4          | 16.5          | 16.5          | +0.0                  |
| Mean years of schooling     | 11.5          | 11.6          | 11.9          | 11.9          | +0.0                  |
| GNI per capita (PPP \$)     | 83,793        | 88,155        | 81,035        | 90,919        | +9,884                |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents fulfilling employment 51.4% were asked to select 5 that they perceived as the 50.2% unemployment most urgent for their city. This is the total bar. The 40.5% health services higher the percentage of responses per area, the recycling 35.4% greater the priority for the city. citizen engagement 31.0% social mobility 27.0% 26.0% The left-hand, dark blue section of each bar shows road congestion public transport 21.5% the Alignment, i.e. the proportion of those security 21.2% respondents who also answered the survey on the 20.5% school education corresponding area by giving it low priority. A 19.3% strong Alignment (i.e. consistency across both basic amenities 16.4% areas explained) means that these areas may corruption 15.2% benefit from close observation. air pollution 15.2%







111

Out of 141



103 out of 118 in 2021

SMART CITY RATING

CC

C in 2021

FACTOR RATINGS

CC

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

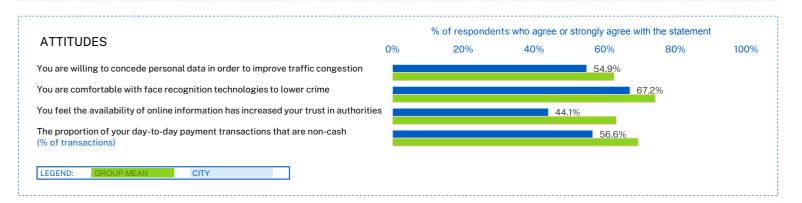
Population HDI 2,085,071 0.856

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.816  | 0.816  | 0.802  | 0.795  | -0.007      |
| Life expectancy at birth    | 74.9   | 75.1   | 73.7   | 71.8   | -1.9        |
| Expected years of schooling | 14.8   | 14.4   | 13.9   | 13.9   | +0.0        |
| Mean years of schooling     | 11.8   | 11.4   | 11.4   | 11.4   | +0.0        |
| GNI per capita (PPP \$)     | 19,646 | 23,325 | 22,020 | 23,079 | +1,058      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% air pollution 65.8% From a list of 15 indicators, survey respondents road congestion 59.1% were asked to select 5 that they perceived as the 53.7% corruption most urgent for their city. This is the total bar. The 39.3% security higher the percentage of responses per area, the affordable housing 39.1% greater the priority for the city. health services 38.2% green spaces 34.2% The left-hand, dark blue section of each bar shows unemployment 29.0% recycling the Alignment, i.e. the proportion of those school education 19.8% respondents who also answered the survey on the 19.5% basic amenities corresponding area by giving it low priority. A fulfilling employment 17.4% strong Alignment (i.e. consistency across both 14.4% public transport areas explained) means that these areas may citizen engagement 10.2% benefit from close observation. social mobility 8.4%





# Stockholm

SMART CITY RANKING

10

Out of 141



11 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

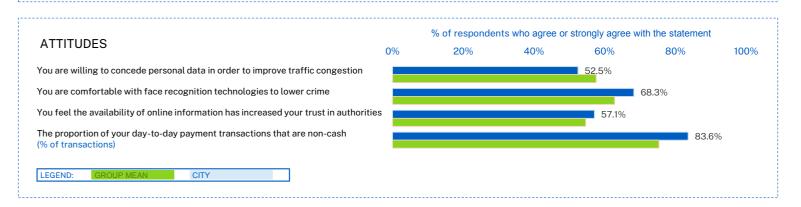
Population HDI 2,391,990 0.972

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.937  | 0.945  | 0.942  | 0.947  | +0.005      |
| Life expectancy at birth    | 82.7   | 82.8   | 82.4   | 83.0   | +0.5        |
| Expected years of schooling | 18.8   | 19.5   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.4   | 12.5   | 12.6   | 12.6   | +0.0        |
| GNI per capita (PPP \$)     | 47,955 | 54,508 | 52,359 | 54,489 | +2,130      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents security 62.8% were asked to select 5 that they perceived as the health services 58.9% most urgent for their city. This is the total bar. The 43.5% unemployment higher the percentage of responses per area, the 31.2% public transport greater the priority for the city. school education 31.1% road congestion 26.6% 22.5% The left-hand, dark blue section of each bar shows recycling social mobility 22.2% the Alignment, i.e. the proportion of those green spaces 20.0% respondents who also answered the survey on the 19.2% fulfilling employment corresponding area by giving it low priority. A air pollution 17.8% strong Alignment (i.e. consistency across both basic amenities 14 4% areas explained) means that these areas may corruption 10.2% benefit from close observation. citizen engagement 9.8%





# Sydney

SMART CITY RANKING

18

Out of 141



29 out of 118 in 2021

SMART CITY RATING



BB in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

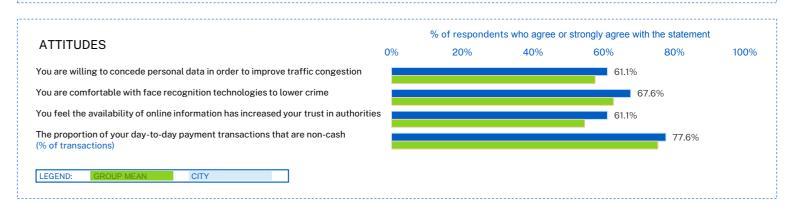
Population HDI 4,321,535 0.952

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.941  | 0.941  | 0.947  | 0.951  | +0.004      |
| Life expectancy at birth    | 83.4   | 83.1   | 84.3   | 84.5   | +0.2        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.1   | 12.4   | 12.4   | +0.0        |
| GNI per capita (PPP \$)     | 43,821 | 52,085 | 49,392 | 52,293 | +2,901      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing 80.0% From a list of 15 indicators, survey respondents road congestion 50.8% were asked to select 5 that they perceived as the health services 45.7% most urgent for their city. This is the total bar. The 38.7% unemployment higher the percentage of responses per area, the public transport 35.2% greater the priority for the city. fulfilling employment 31.0% recycling 25.6% 25.6% The left-hand, dark blue section of each bar shows air pollution 22.5% security the Alignment, i.e. the proportion of those school education 21.6% respondents who also answered the survey on the 19.9% corruption corresponding area by giving it low priority. A basic amenities strong Alignment (i.e. consistency across both social mobility 14.8% areas explained) means that these areas may green spaces 13.3% benefit from close observation. citizen engagement





# Taipei City

SMART CITY RANKING

**29** 

Out of 141



25 out of 118 in 2021

SMART CITY RATING



B in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES



TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI (2019) 2,742,379 0.916

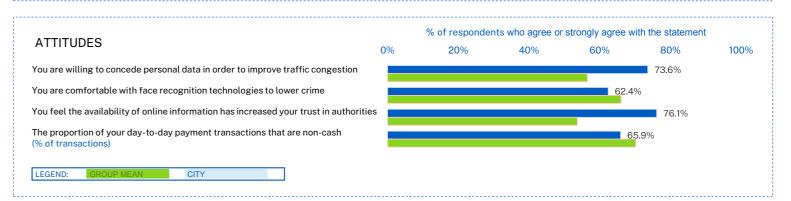
(UN World Urbanisation Prospects 2022 estimate)



| /lap | tiles b | / Stamen | Design | CC | BY 3 | 3.0 | Мар | Data | 0 | OpenStreetMa |
|------|---------|----------|--------|----|------|-----|-----|------|---|--------------|
|      |         |          |        |    |      |     |     |      |   |              |

| Country                     | 2018   | 2019   | 2020 | 2021 | 1 yr change |
|-----------------------------|--------|--------|------|------|-------------|
| HDI                         | 0.911  | 0.916  | NA   | NA   | NA          |
| Life expectancy at birth    | 80.7   | 80.9   | NA   | NA   | NA          |
| Expected years of schooling | 16.5   | 16.5   | NA   | NA   | NA          |
| Mean years of schooling     | 12.2   | 12.3   | NA   | NA   | NA          |
| GNI per capita (PPP \$)     | 49,403 | 52,573 | NA   | NA   | NA          |
|                             |        |        |      |      |             |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% 79.6% affordable housing From a list of 15 indicators, survey respondents road congestion 57.1% were asked to select 5 that they perceived as the air pollution 50.7% most urgent for their city. This is the total bar. The fulfilling employment 42.3% higher the percentage of responses per area, the 33.9% corruption greater the priority for the city. unemployment 32.3% security 31.8% The left-hand, dark blue section of each bar shows public transport 25.7% basic amenities 25.0% the Alignment, i.e. the proportion of those health services 21.9% respondents who also answered the survey on the green spaces 21.4% corresponding area by giving it low priority. A school education strong Alignment (i.e. consistency across both 15.4% citizen engagement areas explained) means that these areas may social mobility 12.3% benefit from close observation. recycling 10.9%







Out of 141



24 out of 118 in 2021

**SMART CITY RATING** 

**BBB** 

BBB in 2021

**FACTOR RATINGS** 

**BBB** 

**STRUCTURES** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 613,158 0.932

(Eurostat)

GNI per capita (PPP \$)



35,132

38.048

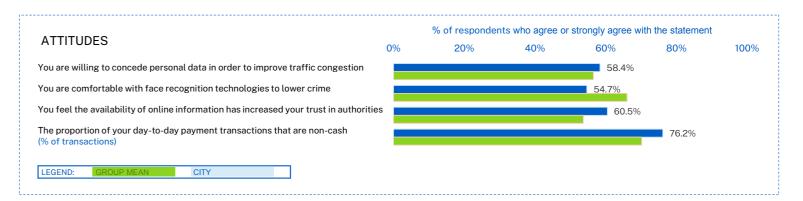
+2.916

| Country                     | 2018  | 2019  | 2020  | 2021  | 1 yr change |
|-----------------------------|-------|-------|-------|-------|-------------|
| HDI                         | 0.882 | 0.892 | 0.892 | 0.890 | -0.002      |
| Life expectancy at birth    | 78.6  | 78.8  | 78.3  | 77.1  | -1.2        |
| Expected years of schooling | 16.1  | 16.0  | 15.9  | 15.9  | +0.0        |
| Mean years of schooling     | 13.0  | 13.1  | 13.6  | 13.6  | +0.0        |

36.019

30.379

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 60.9% From a list of 15 indicators, survey respondents 47.7% corruption were asked to select 5 that they perceived as the road congestion 40.8% most urgent for their city. This is the total bar. The health services 40.8% higher the percentage of responses per area, the 32.8% unemplovment greater the priority for the city. fulfilling employment 30.7% citizen engagement 28.2% school education 23.1% The left-hand, dark blue section of each bar shows 22.6% green spaces the Alignment, i.e. the proportion of those recycling 20.9% respondents who also answered the survey on the 20.0% social mobility corresponding area by giving it low priority. A 19.8% security strong Alignment (i.e. consistency across both 19.8% basic amenities areas explained) means that these areas may public transport 19.7% benefit from close observation. air pollution 13.9%





# Tel Aviv

SMART CITY RANKING

91

Out of 141



59 out of 118 in 2021

SMART CITY RATING

B

BB in 2021

FACTOR RATINGS

B

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

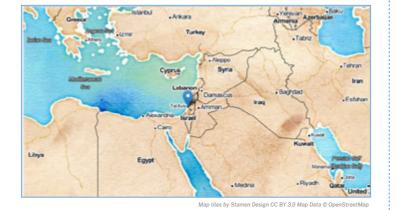
All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

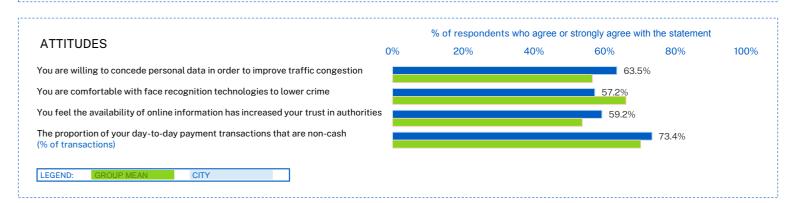
Population HDI 462,210 0.919

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.906  | 0.919  | 0.917  | 0.919  | +0.002      |
| Life expectancy at birth    | 82.8   | 83.0   | 82.4   | 82.3   | -0.1        |
| Expected years of schooling | 16.0   | 16.2   | 16.1   | 16.1   | +0.0        |
| Mean years of schooling     | 13.0   | 13.0   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 33,650 | 40,187 | 39,015 | 41,524 | +2,509      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 73.9% road congestion From a list of 15 indicators, survey respondents affordable housing 73.5% were asked to select 5 that they perceived as the public transport 52.3% most urgent for their city. This is the total bar. The 40.4% security higher the percentage of responses per area, the 39.0% air pollution greater the priority for the city. green spaces 32.3% school education 23.8% health services 22.1% The left-hand, dark blue section of each bar shows corruption the Alignment, i.e. the proportion of those recycling 18.5% respondents who also answered the survey on the fulfilling employment 18.2% corresponding area by giving it low priority. A basic amenities 15.5% strong Alignment (i.e. consistency across both 15 1% unemployment areas explained) means that these areas may citizen engagement 13.3% benefit from close observation. social mobility 6.7%





# The Hague

SMART CITY RANKING

43

Out of 141



35 out of 118 in 2021

SMART CITY RATING



BB in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

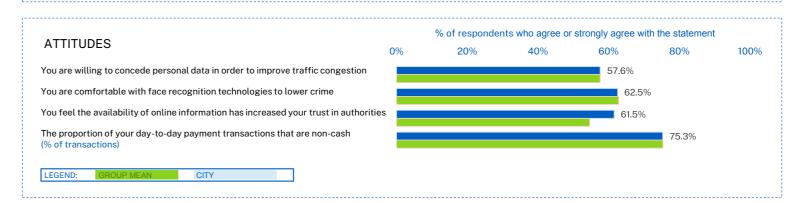
Population HDI 3,726,050 0.941

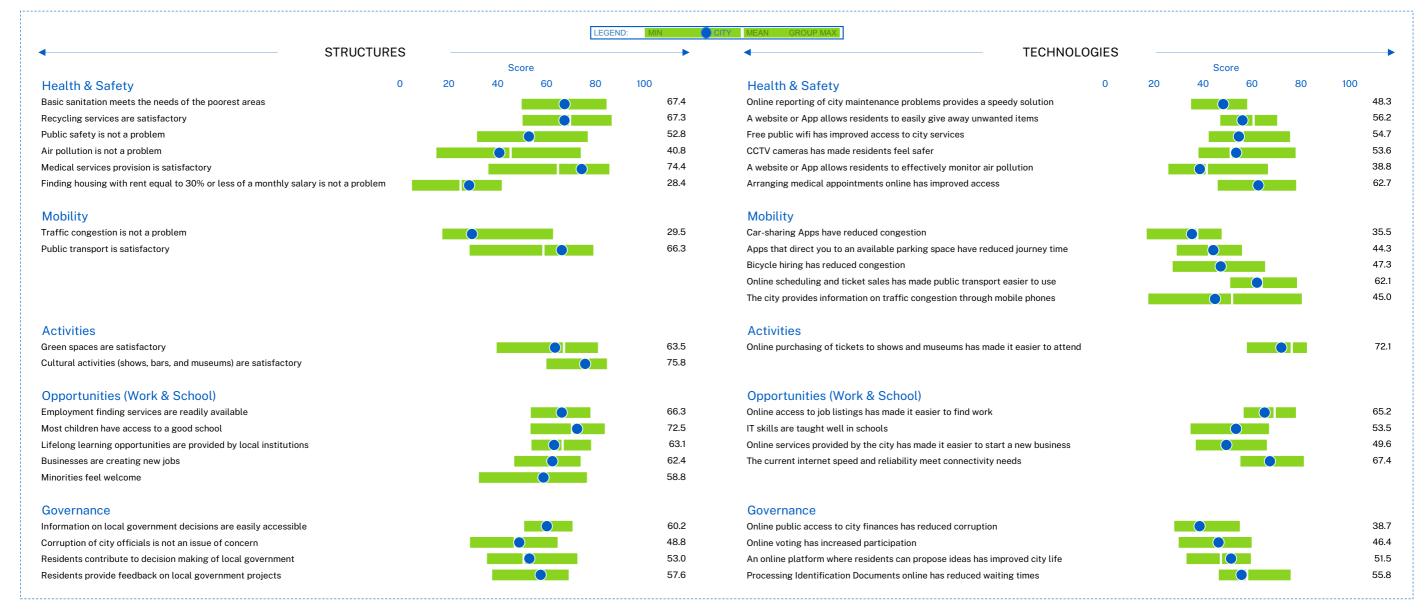
(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.934  | 0.944  | 0.939  | 0.941  | +0.002      |
| Life expectancy at birth    | 82.1   | 82.3   | 81.6   | 81.7   | +0.0        |
| Expected years of schooling | 18.0   | 18.5   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 12.2   | 12.4   | 12.6   | 12.6   | +0.0        |
| GNI per capita (PPP \$)     | 50,013 | 57,707 | 53,504 | 55,979 | +2,476      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 72.0% affordable housing From a list of 15 indicators, survey respondents security 57.9% were asked to select 5 that they perceived as the health services 38.6% most urgent for their city. This is the total bar. The 36.6% road congestion higher the percentage of responses per area, the basic amenities 30.4% greater the priority for the city. school education 29.0% air pollution 28.9% 28.5% The left-hand, dark blue section of each bar shows green spaces unemployment 23.8% the Alignment, i.e. the proportion of those public transport 23.1% respondents who also answered the survey on the recycling 20.4% corresponding area by giving it low priority. A 18.0% citizen engagement strong Alignment (i.e. consistency across both 17.3% corruption areas explained) means that these areas may social mobility 14.9% benefit from close observation. fulfilling employment 13.5%







**67** 

Out of 141



50 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

B

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

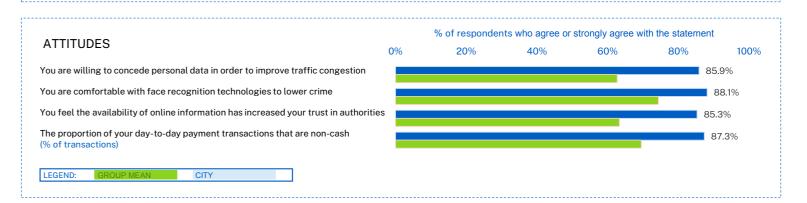
Population HDI 14,011,828 0.844

(UN World Urbanisation Prospects 2022 estimate)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |  |
|-----------------------------|--------|--------|--------|--------|-------------|--|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |  |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |  |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |  |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |  |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 60% 100% 52.6% road congestion From a list of 15 indicators, survey respondents fulfilling employment 48.9% were asked to select 5 that they perceived as the air pollution 48.8% most urgent for their city. This is the total bar. The 44.1% corruption higher the percentage of responses per area, the 41.0% health services greater the priority for the city. affordable housing 36.5% basic amenities 27.3% 24.5% The left-hand, dark blue section of each bar shows school education 21.9% social mobility the Alignment, i.e. the proportion of those unemployment 20.8% respondents who also answered the survey on the security 19.1% corresponding area by giving it low priority. A 17.7% citizen engagement strong Alignment (i.e. consistency across both 17.0% green spaces areas explained) means that these areas may recycling 16.4% benefit from close observation. public transport 14.3%







**72** 

Out of 141



67 out of 118 in 2021

SMART CITY RATING

BB

BB in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

1

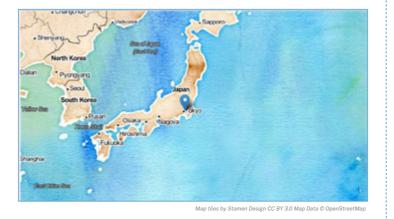
All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

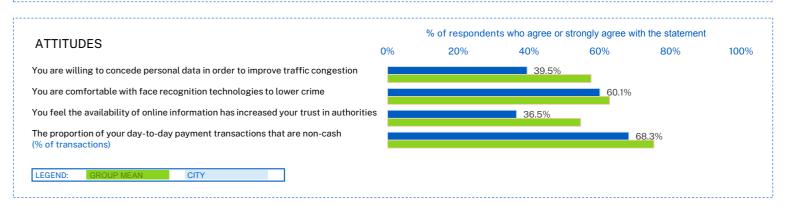
Population HDI 9,733,276 0.951

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.915  | 0.919  | 0.923  | 0.925  | +0.002      |
| Life expectancy at birth    | 84.5   | 84.6   | 84.7   | 84.8   | +0.1        |
| Expected years of schooling | 15.2   | 15.2   | 15.2   | 15.2   | +0.0        |
| Mean years of schooling     | 12.8   | 12.9   | 13.4   | 13.4   | +0.0        |
| GNI per capita (PPP \$)     | 40,799 | 42,932 | 41,487 | 42,274 | +787        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% 48.3% health services From a list of 15 indicators, survey respondents basic amenities 46.0% were asked to select 5 that they perceived as the affordable housing 45.7% most urgent for their city. This is the total bar. The 42.0% security higher the percentage of responses per area, the 34.4% road congestion greater the priority for the city. public transport 30.1% school education 29.8% 28.0% The left-hand, dark blue section of each bar shows air pollution fulfilling employment 26.3% the Alignment, i.e. the proportion of those unemployment 23.2% respondents who also answered the survey on the citizen engagement 21.9% corresponding area by giving it low priority. A 20.7% corruption strong Alignment (i.e. consistency across both 19.3% social mobility areas explained) means that these areas may green spaces 18.2% recycling benefit from close observation. 17.8%





# Toronto

**SMART** CITY **RANKING** 

Out of 141



31 out of 118 in 2021

**SMART CITY RATING** 

**BBB** 

A in 2021

**FACTOR RATINGS** 

**BBB** 

**STRUCTURES** 

**BBB** 

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 2,731,570 0.943

(UN Data)



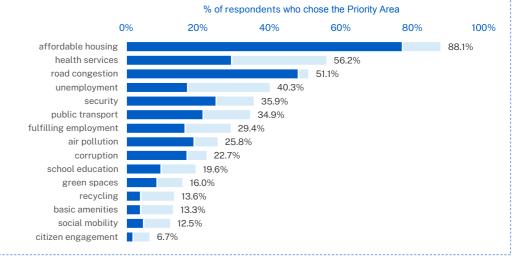
| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.931 | 0.936 | +0.005      |

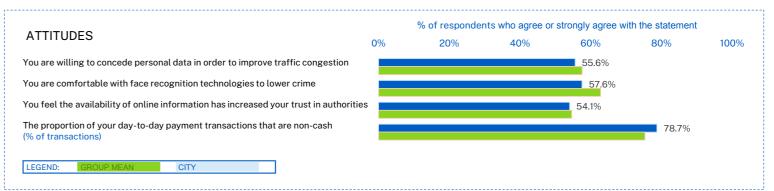
| Country                     | 2018   | 2019   | 2020   | 2021   | i yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.933  | 0.937  | 0.931  | 0.936  | +0.005      |
| Life expectancy at birth    | 82.1   | 82.4   | 82.1   | 82.7   | +0.6        |
| Expected years of schooling | 16.2   | 16.4   | 16.4   | 16.4   | +0.0        |
| Mean years of schooling     | 13.8   | 8.7    | 8.8    | 8.8    | +0.0        |
| GNI per capita (PPP \$)     | 18,371 | 18,486 | 18,754 | 19,974 | +1,220      |
|                             |        |        |        |        |             |

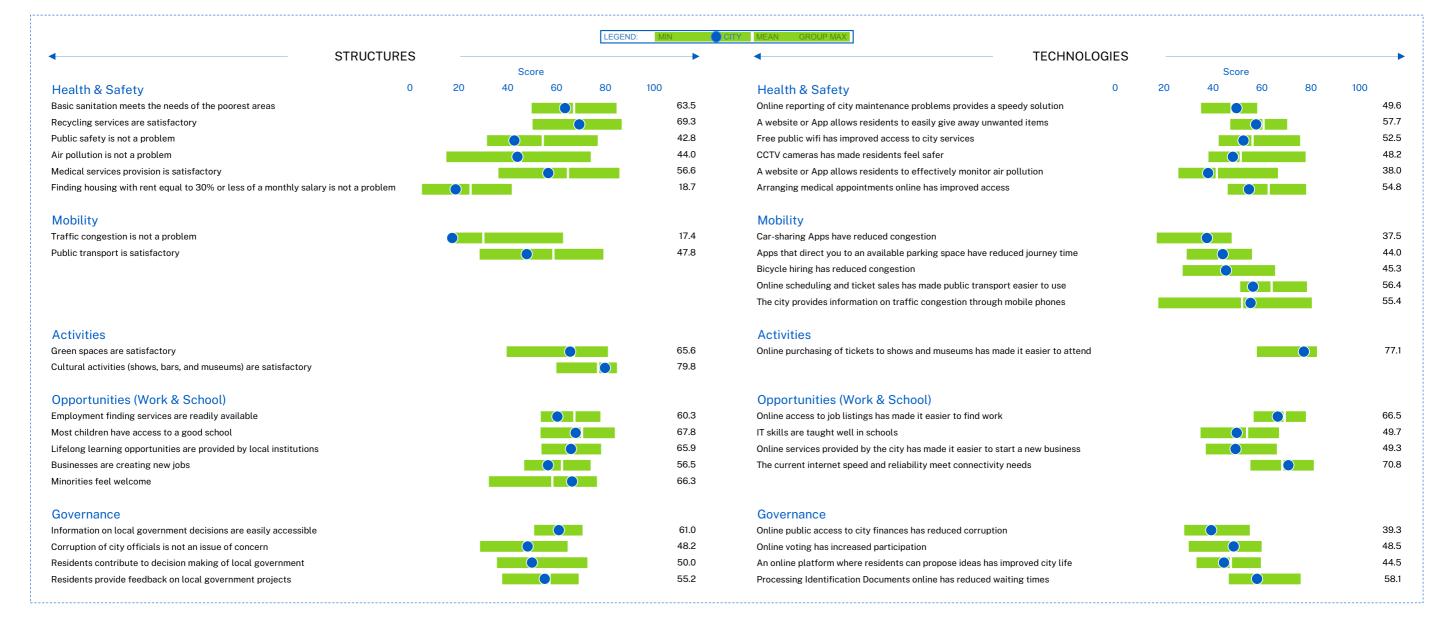
#### PRIORITY AREAS From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the

greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.









137

Out of 141

not out of 118 in 2021

SMART CITY RATING

D

not in 2021

FACTOR RATINGS

D

STRUCTURES

D

**TECHNOLOGIES** 

**GROUP** 

4

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 2,439,404 0.775

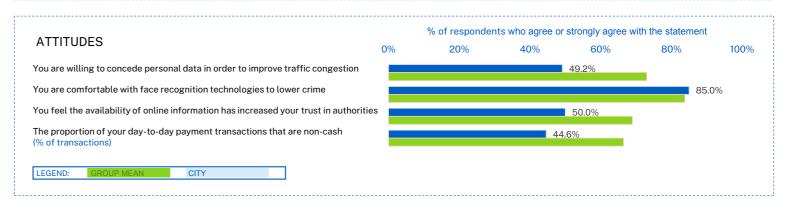
(UN World Urbanisation Prospects 2022 estimate)



| Man tiles hy Stamen | Design | CC RY 3 D | Man Data | @ OnenStreet |
|---------------------|--------|-----------|----------|--------------|

| Country<br>HDI              | 2018<br>0.743 | 2019<br>0.745 | 2020<br>0.737 | 2021<br>0.731 | 1 yr change<br>-0.006 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 76.0          | 76.0          | 75.3          | 73.8          | -1.5                  |
| Expected years of schooling | 15.3          | 15.4          | 15.4          | 15.4          | +0.0                  |
| Mean years of schooling     | 7.4           | 7.4           | 7.4           | 7.4           | +0.0                  |
| GNI per capita (PPP \$)     | 11,027        | 10,910        | 10,046        | 10,258        | +211                  |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% unemployment 66.7% From a list of 15 indicators, survey respondents public transport 66.7% were asked to select 5 that they perceived as the health services 59.2% most urgent for their city. This is the total bar. The 44.2% corruption higher the percentage of responses per area, the 42.5% affordable housing greater the priority for the city. road congestion 40.8% security 40.8% 33.3% The left-hand, dark blue section of each bar shows school education basic amenities 25.0% the Alignment, i.e. the proportion of those fulfilling employment 20.0% respondents who also answered the survey on the 13.3% green spaces corresponding area by giving it low priority. A air pollution 13.3% strong Alignment (i.e. consistency across both recycling 10.0% areas explained) means that these areas may citizen engagement 9.2% benefit from close observation. social mobility 5.0%





# Vancouver

SMART CITY RANKING

42

Out of 141



28 out of 118 in 2021

SMART CITY RATING



A in 2021

FACTOR RATINGS



STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

Population HDI 631,490 0.944

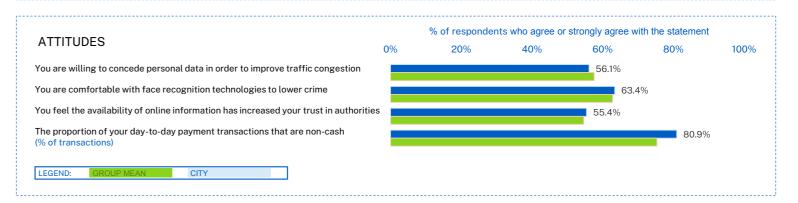
(UN Data)



| Map tiles by | Stamen Design | CC BY 3.0 | Map Data | @ OpenStreetMa |
|--------------|---------------|-----------|----------|----------------|
|--------------|---------------|-----------|----------|----------------|

| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.933  | 0.937  | 0.931  | 0.936  | +0.005      |
| Life expectancy at birth    | 82.1   | 82.4   | 82.1   | 82.7   | +0.6        |
| Expected years of schooling | 16.2   | 16.4   | 16.4   | 16.4   | +0.0        |
| Mean years of schooling     | 13.8   | 8.7    | 8.8    | 8.8    | +0.0        |
| GNI per capita (PPP \$)     | 18,371 | 18,486 | 18,754 | 19,974 | +1,220      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 60% 100% affordable housing 89.9% From a list of 15 indicators, survey respondents 64.8% health services were asked to select 5 that they perceived as the road congestion 49.0% most urgent for their city. This is the total bar. The 37.2% security higher the percentage of responses per area, the 33.1% unemployment greater the priority for the city. public transport 30.4% fulfilling employment 24.7% The left-hand, dark blue section of each bar shows corruption 19.1% 17.5% air pollution the Alignment, i.e. the proportion of those school education 17.2% respondents who also answered the survey on the basic amenities 15.1% corresponding area by giving it low priority. A social mobility 14.7% strong Alignment (i.e. consistency across both 14.5% green spaces areas explained) means that these areas may citizen engagement 14.1% benefit from close observation. recycling 14.1%







28

Out of 141



20 out of 118 in 2021

SMART CITY RATING



AA in 2021

FACTOR RATINGS



STRUCTURES



**TECHNOLOGIES** 

**GROUP** 

1

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

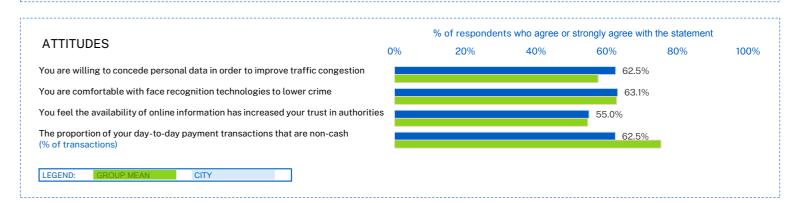
Population HDI 1,920,949 0.942

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.914  | 0.922  | 0.913  | 0.916  | +0.003      |
| Life expectancy at birth    | 81.4   | 81.5   | 81.5   | 81.6   | +0.1        |
| Expected years of schooling | 16.3   | 16.1   | 16.0   | 16.0   | +0.0        |
| Mean years of schooling     | 12.6   | 12.5   | 12.3   | 12.3   | +0.0        |
| GNI per capita (PPP \$)     | 46,231 | 56,197 | 51,574 | 53,619 | +2,044      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents 47.1% security were asked to select 5 that they perceived as the road congestion 45.5% most urgent for their city. This is the total bar. The 45.1% unemployment higher the percentage of responses per area, the corruption 31.8% greater the priority for the city. air pollution 30.9% green spaces 26.0% health services 24.8% The left-hand, dark blue section of each bar shows 22.3% recycling the Alignment, i.e. the proportion of those school education 20.5% respondents who also answered the survey on the 18.4% citizen engagement corresponding area by giving it low priority. A fulfilling employment 18.1% strong Alignment (i.e. consistency across both 18.0% public transport areas explained) means that these areas may social mobility 14.2% benefit from close observation. basic amenities 13.8%







**65** 

Out of 141

not out of 118 in 2021

SMART CITY RATING

BB

not in 2021

FACTOR RATINGS

BB

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

#### BACKGROUND INFORMATION

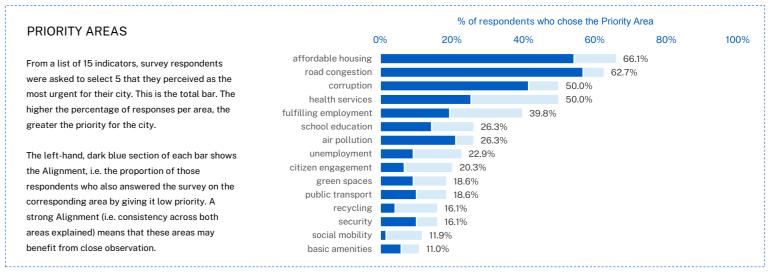
#### City

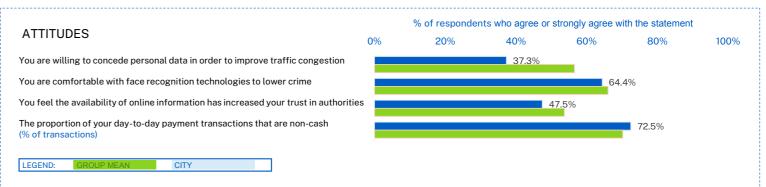
Population HDI 829,983 0.913

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.880  | 0.884  | 0.879  | 0.875  | -0.004      |
| Life expectancy at birth    | 75.7   | 76.2   | 75.1   | 73.7   | -1.3        |
| Expected years of schooling | 16.6   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.3   | 13.4   | 13.5   | 13.5   | +0.0        |
| GNI per capita (PPP \$)     | 33,963 | 35,705 | 36,077 | 37,931 | +1,855      |









44

Out of 141



41 out of 118 in 2021

SMART CITY RATING

**BBB** 

BB in 2021

FACTOR RATINGS

**BBB** 

STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

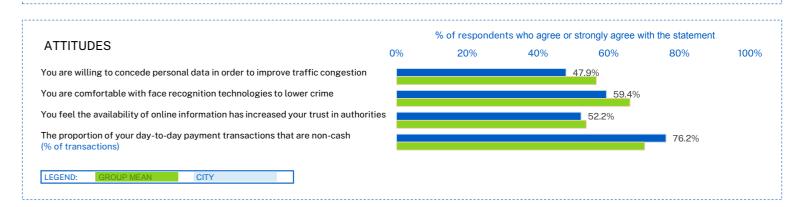
Population HDI 3,095,025 0.926

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.872  | 0.880  | 0.876  | 0.876  | +0.000      |
| Life expectancy at birth    | 78.5   | 78.7   | 76.9   | 76.5   | -0.5        |
| Expected years of schooling | 16.4   | 16.3   | 16.0   | 16.0   | +0.0        |
| Mean years of schooling     | 12.3   | 12.5   | 13.2   | 13.2   | +0.0        |
| GNI per capita (PPP \$)     | 27,626 | 31,623 | 31,164 | 33,034 | +1,869      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents security 43.7% were asked to select 5 that they perceived as the health services 43.3% most urgent for their city. This is the total bar. The fulfilling employment 39.1% higher the percentage of responses per area, the air pollution 38.6% greater the priority for the city. road congestion 36.8% basic amenities 36.2% The left-hand, dark blue section of each bar shows green spaces 32.5% 31.3% public transport the Alignment, i.e. the proportion of those recycling 28.7% respondents who also answered the survey on the 20.4% school education corresponding area by giving it low priority. A 18.7% strong Alignment (i.e. consistency across both 18.0% corruption areas explained) means that these areas may social mobility 14.2% benefit from close observation. citizen engagement





# Washington D.C.

SMART CITY RANKING

39

Out of 141



26 out of 118 in 2021

SMART CITY RATING

BB

A in 2021

FACTOR RATINGS

BB

STRUCTURES

BB

TECHNOLOGIES

**GROUP** 

2

All ratings range from AAA to D



#### City

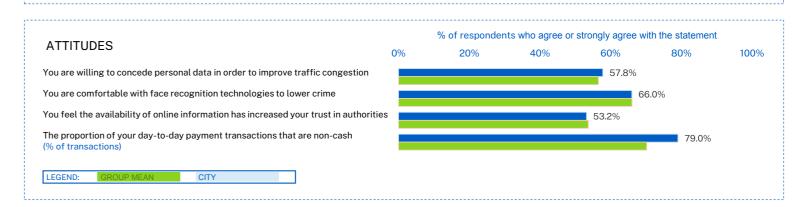
Population HDI 689,545 0.940

(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.920  | 0.926  | 0.920  | 0.921  | +0.001      |
| Life expectancy at birth    | 78.9   | 78.9   | 77.4   | 77.2   | -0.2        |
| Expected years of schooling | 16.3   | 16.3   | 16.3   | 16.3   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.7   | 13.7   | +0.0        |
| GNI per capita (PPP \$)     | 56,140 | 63,826 | 61,462 | 64,765 | +3,304      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing From a list of 15 indicators, survey respondents 47.6% were asked to select 5 that they perceived as the road congestion 47.4% most urgent for their city. This is the total bar. The health services 47.4% higher the percentage of responses per area, the 37.9% unemployment greater the priority for the city. school education 33.6% fulfilling employment 28.8% public transport 28.5% The left-hand, dark blue section of each bar shows air pollution 26.1% the Alignment, i.e. the proportion of those corruption 22.6% respondents who also answered the survey on the basic amenities 19.6% corresponding area by giving it low priority. A recycling strong Alignment (i.e. consistency across both 13 1% social mobility areas explained) means that these areas may green spaces 12.8% benefit from close observation. citizen engagement





# Wellington

SMART CITY RANKING

**23** 

Out of 141

not out of 118 in 2021

SMART CITY RATING



not in 2021

FACTOR RATINGS



STRUCTURES

**BBB** 

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

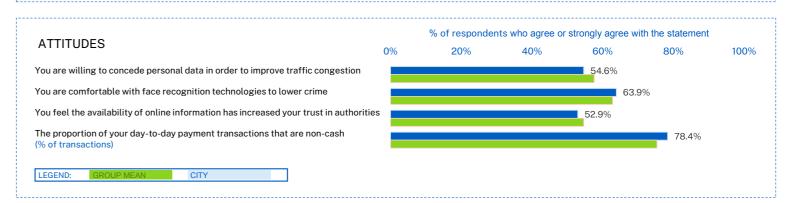
Population HDI 201,786 0.958

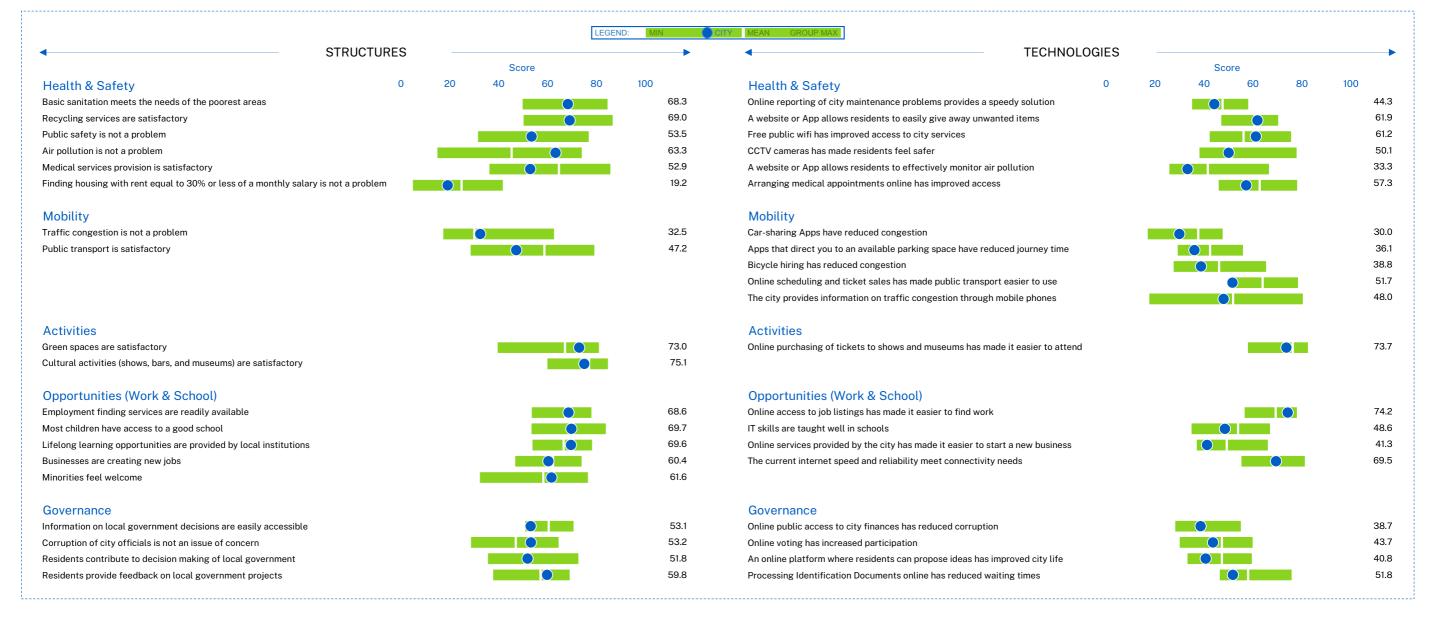
(UN Data)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.936  | 0.937  | 0.936  | 0.937  | +0.001      |
| Life expectancy at birth    | 82.4   | 82.6   | 82.7   | 82.5   | -0.3        |
| Expected years of schooling | 18.0   | 18.0   | 18.0   | 18.0   | +0.0        |
| Mean years of schooling     | 13.1   | 7.9    | 8.7    | 8.7    | +0.0        |
| GNI per capita (PPP \$)     | 16,129 | 17,781 | 16,804 | 17,030 | +226        |

#### % of respondents who chose the Priority Area PRIORITY AREAS 40% 100% affordable housing 86.6% From a list of 15 indicators, survey respondents health services 59.7% were asked to select 5 that they perceived as the public transport 48.7% most urgent for their city. This is the total bar. The 47.1% basic amenities higher the percentage of responses per area, the 41.2% road congestion greater the priority for the city. unemployment 37.0% security 26.1% fulfilling employment 23.5% The left-hand, dark blue section of each bar shows 22.7% school education the Alignment, i.e. the proportion of those recycling 21.9% respondents who also answered the survey on the 16.0% citizen engagement corresponding area by giving it low priority. A 13.4% corruption strong Alignment (i.e. consistency across both air pollution 9.2% areas explained) means that these areas may social mobility 6.7% benefit from close observation. green spaces 5.0%





# Zagreb

**SMART** CITY **RANKING** 

106

Out of 141

not out of 118 in 2021

**SMART CITY RATING** 

CCC

not in 2021

**FACTOR RATINGS** 

B

**STRUCTURES** 

CCC

**TECHNOLOGIES** 

**GROUP** 

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 809,235 0.916

(Eurostat)

Country

HDI



| 2020  | 2021  | 1 yr change |
|-------|-------|-------------|
| 0.855 | 0.858 | +0.003      |
| 78.0  | 77.6  | -0.4        |

0.861 0.856 Life expectancy at birth 78.3 78.7 Expected years of schooling 15.2 15.1 15.1 15.1 +0.0 Mean years of schooling 12.1 12.2 12.2 12.2 +0.0 +2,947 GNI per capita (PPP \$) 27,784 28.898 27,185 30,132

2019

2018

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 63.3% basic amenities From a list of 15 indicators, survey respondents corruption 60.0% were asked to select 5 that they perceived as the road congestion 58.3% most urgent for their city. This is the total bar. The affordable housing 40.8% higher the percentage of responses per area, the 40.8% health services greater the priority for the city. recycling 34.2% public transport 31.7% 29.2% The left-hand, dark blue section of each bar shows unemployment

fulfilling employment

air pollution

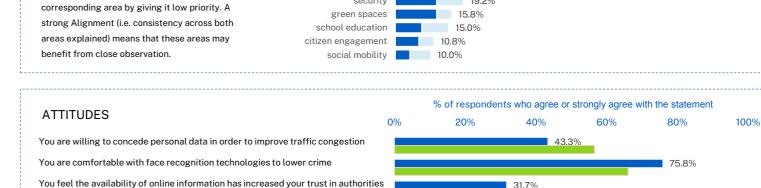
security

29.2%

26.7%

19.2%

100%





LEGEND:

the Alignment, i.e. the proportion of those

respondents who also answered the survey on the

The proportion of your day-to-day payment transactions that are non-cash

# Zaragoza

SMART CITY RANKING

**54** 

Out of 141



51 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

B

STRUCTURES

CC

TECHNOLOGIES

**GROUP** 

3

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

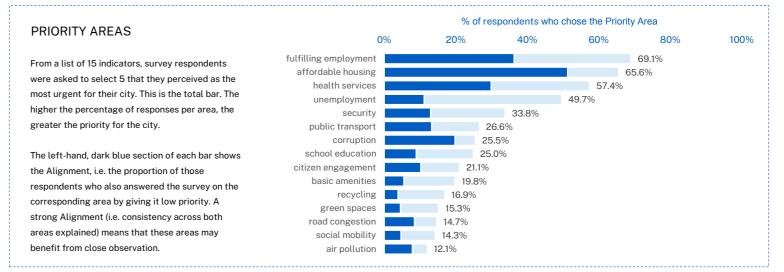
Population HDI 1,331,133 0.912

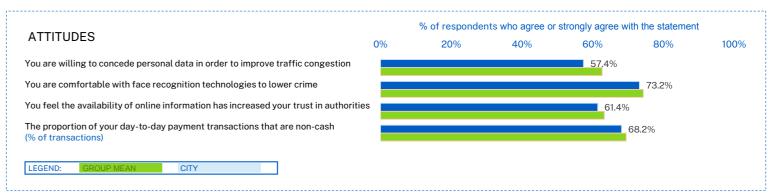
(Eurostat)



| Map tiles by | Stamen Design | CC BY 3.0 | Map Data | @ OpenStreetMa |
|--------------|---------------|-----------|----------|----------------|
|--------------|---------------|-----------|----------|----------------|

| Country<br>HDI              | 2018<br>0.893 | 2019<br>0.904 | 2020<br>0.899 | 2021<br>0.905 | 1 yr change<br>+0.006 |
|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|
| Life expectancy at birth    | 83.4          | 83.6          | 82.3          | 83.0          | +0.7                  |
| Expected years of schooling | 17.9          | 17.6          | 17.9          | 17.9          | +0.0                  |
| Mean years of schooling     | 9.8           | 10.3          | 10.6          | 10.6          | +0.0                  |
| GNI per capita (PPP \$)     | 35,041        | 40,975        | 36,516        | 38,354        | +1,838                |









**60** 

Out of 141



52 out of 118 in 2021

SMART CITY RATING

CCC

CCC in 2021

FACTOR RATINGS

CCC

STRUCTURES

CCC

TECHNOLOGIES

**GROUP** 

4

All ratings range from AAA to D

#### **BACKGROUND INFORMATION**

#### City

Population HDI 1,847,411 0.799

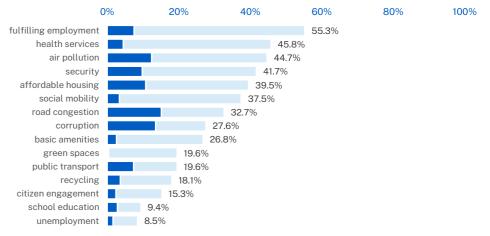
(UN World Urbanisation Prospects 2022 estimate)



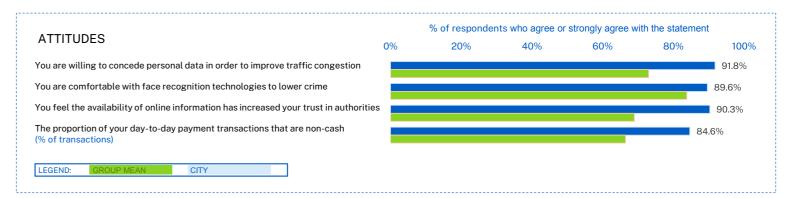
| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.758  | 0.761  | 0.764  | 0.768  | +0.004      |
| Life expectancy at birth    | 76.7   | 76.9   | 78.1   | 78.2   | +0.1        |
| Expected years of schooling | 13.9   | 14.0   | 14.2   | 14.2   | +0.0        |
| Mean years of schooling     | 7.9    | 8.1    | 7.6    | 7.6    | +0.0        |
| GNI per capita (PPP \$)     | 16,127 | 16,057 | 16,201 | 17,504 | +1,303      |

# PRIORITY AREAS From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. This is the total bar. The higher the percentage of responses per area, the greater the priority for the city.

The left-hand, dark blue section of each bar shows the Alignment, i.e. the proportion of those respondents who also answered the survey on the corresponding area by giving it low priority. A strong Alignment (i.e. consistency across both areas explained) means that these areas may benefit from close observation.



% of respondents who chose the Priority Area







1

Out of 141

1 out of 118 in 2021

SMART CITY RATING

AAA

AAA in 2021

FACTOR RATINGS

AAA

STRUCTURES

A

TECHNOLOGIES

**GROUP** 

1

All ratings range from AAA to D

#### BACKGROUND INFORMATION

#### City

Population HDI 1,553,423 0.989

(Eurostat)



| Country                     | 2018   | 2019   | 2020   | 2021   | 1 yr change |
|-----------------------------|--------|--------|--------|--------|-------------|
| HDI                         | 0.946  | 0.955  | 0.956  | 0.962  | +0.006      |
| Life expectancy at birth    | 83.6   | 83.8   | 83.1   | 84.0   | +0.9        |
| Expected years of schooling | 16.2   | 16.3   | 16.5   | 16.5   | +0.0        |
| Mean years of schooling     | 13.4   | 13.4   | 13.9   | 13.9   | +0.0        |
| GNI per capita (PPP \$)     | 59,375 | 69,394 | 65,011 | 66,933 | +1,922      |

#### % of respondents who chose the Priority Area PRIORITY AREAS 0% 40% 100% affordable housing From a list of 15 indicators, survey respondents 65.2% road congestion were asked to select 5 that they perceived as the unemployment 33.1% most urgent for their city. This is the total bar. The air pollution 32.6% higher the percentage of responses per area, the 26.8% security greater the priority for the city. green spaces 26.5% fulfilling employment 22.9% 22.4% The left-hand, dark blue section of each bar shows public transport recycling 22.3% the Alignment, i.e. the proportion of those health services 18.1% respondents who also answered the survey on the 17.1% social mobility corresponding area by giving it low priority. A basic amenities 13.7% strong Alignment (i.e. consistency across both school education 13.0% areas explained) means that these areas may corruption 12.8% benefit from close observation. citizen engagement 12.1%

