

FACT SHEET: DYNAMIC CITIES DASHBOARD

OVERVIEW

What is the Dynamic Cities Dashboard and what makes it unique?

As the future of the global economy increasingly shifts East and South, society needs a better lens to assess the world's principal motors of growth—cities. Based on the principles of the [Bloomberg New Economy Dynamic Cities Framework](#), the dashboard will track and aim to catalyze progress in New Economy cities as they strive to be sustainable, fair, happy, innovative, data-driven, and responsive hubs for talent and development.

This dashboard builds on existing urban indices and rankings, and intentionally seeks to avoid redundancies and keep a helpful focus in that:

- It shifts attention to the South and East in line with global shifts in the size and power of urban centers (for example, the top 10 fastest-growing cities by GDP between 2019 and 2035 will be in India, and the largest French-speaking city in the world is not Paris but Kinshasa).
- It captures positive change by focusing on measures of *progress* over time, versus simply highlighting which cities are already furthest ahead on any given indicator.
- Its six pillars represent different but interconnected aspects of city success, as opposed to a single emphasis (e.g., on sustainability or entrepreneurship).
- It uses city archetypes to make fair cross-regional comparisons by identifying key characteristics that different kinds of cities share in solutions and potential pathways, understanding that “one size does not fit all.”
- It links the pillars to the UN SDGs in support of a multilateral approach that optimizes interventions and ladders up to a global agenda.

What is the Dynamic Cities Dashboard trying to achieve?

It aims to be a tool that:

- 1) promotes standardized data collection at the city level;
- 2) increases transparency within governments;
- 3) empowers urbanites with information to demand more from their governments; and
- 4) sets the development agenda for local, as well as national, governments and decision makers.

Why the 6 pillars of Fair, Sustainable, Happy, Innovative, Data Driven, and Responsive?

The Bloomberg New Economy Cities Coalition identified requisites for the most liveable cities, as well as those best placed to adapt and innovate in an age of uncertainty: cities that are Happy, Fair, Sustainable, Innovative, Data-driven, and Responsive. While the pillars are interrelated, they can be categorized into two

groups: those that provide a foundation of stability and resilience (Happy, Fair, and Sustainable) and those that are drivers of progress (Innovative, Data-driven, and Responsive).

Why are these the indicators for the Dashboard?

This set of foundational indicators was crafted in collaboration with [Cities Coalition members](#) and Knowledge Partner McKinsey & Company who initially identified dozens of potential indicators. The exploration for a single publicly available data source for a majority of cities filtered the indicators down across the 6-point framework. The goal for this set of indicators was to highlight what we believe are important elements of city life that should be measured and tracked over time in order to drive productive change. These indicators are in no way exhaustive but are instead a starting point to build from while acknowledging the challenges in new primary data collection.

What is the difference between performance and progress indicators?

Each pillar has performance and progress indicators. Performance indicators are a result of a single data point assessing a city's performance in a given moment in time (e.g., the point-in-time air quality). Progress indicators measure change over two different points in time (e.g., how much more of a city's energy mix in 2021 was from renewables as compared to 2018). Our framework places greater emphasis on progress indicators as indicators of dynamism. Due to a lack of periodic data availability for some indicators, the first iteration of the dashboard will use both in order to be as comprehensive as possible, and ideally encourage more cities to regularly collect data across more indicators, ensuring iterations of the dashboard will seek to report progress across more indicators over time.

What is the connection to the SDGs?

In 2015, the United Nations set forth a universal sustainable development agenda with ambitious targets for 17 Sustainable Development Goals (or SDGs). With the world "woefully off track," as per the UN Secretary-General António Guterres, from meeting these goals by the 2030 deadline, we believe interventions in cities should ultimately ladder up to and advance the SDGs and thus encourage cities to submit Local Voluntary Reviews, which could include any of our indicators.

METHODOLOGY & DATA FOR DASHBOARD

City selection: We selected the cities to include based on a 3-step process. We began with McKinsey's grouping of the "[City 600](#)," the 600 cities contributing the most to global economic growth, responsible for 66% of projected GDP growth between 2015 and 2025. Then we defined 13 geographic regions to segment cities within, and filtered the "City 600" based on availability of public data. We then prioritized cities based on relative economic importance (i.e., GDP) and population growth within the 13 regions. We note that in this first version, we do not have representation from any Central Asian countries due to a significant absence of data. The 27 cities included are: Auckland, Budapest, Buenos Aires, Cairo, Casablanca, Hong Kong, Istanbul, Jakarta, Johannesburg, Lagos, London, Manila, Medellín, Mexico City,

Montreal, Mumbai, New York, Paris, Rio de Janeiro, Riyadh, San Salvador, Seoul, Shanghai, Singapore, Sydney, Tokyo, and Warsaw.

City archetypes: As no cities are exactly alike and all face different challenges, we are proposing distinguishing between 6 archetypes as a means to better compare cities in their different stages of growth and development. The starting archetypes are based on GDP per capita (PPP adjusted) and population growth rates.

6 archetypes:
<ul style="list-style-type: none"> • Low Income/Slow Population Growth • Emerging/Slow Population Growth • High Income/Slow Population Growth • Low Income/Rapid Population Growth • Emerging/Rapid Population Growth • High Income/Rapid Population Growth
High Income defined as GDP per capita > \$30,000 (USD); Low Income defined as GDP per capita < \$15,000 (USD); Emerging defined as GDP per capita between \$15,000 and \$30,000 (USD); Rapid population growth defined as population growth > 1% p.a. ('20-'22); slow population growth defined as population growth = < 1% p.a. ('20-'22)

We will see over time whether these archetypes provide a useful comparison between cities as is our hypothesis.

Data collection and sources: We have identified indicators per pillar that we believe are strong gauges of the 6-point framework. All of the data sources used are publicly available sources of data that are regularly updated. All sources are at a city level, with the exception of urban services, patents filed paper capita, and turnout for parliamentary/congressional elections, which are at the country level. For now, only one data source has been used for each indicator. Data collection at a city level has posed a significant challenge and in this first iteration we do have gaps across cities, as you can see below. In the future we will look to close these gaps and potentially refine the cities.

GDP: [Source](#) | City Mayors

Population Growth: [Source](#) | United Nations

Pillar	indicator	Source	Data Constraints	Rationale
Fair	Rent burden: Total % change in rent (of an average 1-bedroom apartment) to income	Source Numbeo Numbeo (self reported)	San Salvador is missing 2023 data for net salary, apartment rent in and outside the city center,	Rent is the single largest household expense; rent burden tends to be highest among low-income and underrepresented minority

	ratio (2018-2023)	survey)	hence annual averages were calculated 2018-2022. San Salvador was also missing 2019 data for apartment rent in and outside the city center, and 2021 apartment rent outside the city center, for which we used the average of the neighboring years.	communities; hence rent burden is a proxy for economic hardship and socioeconomic disparity
	Access to public transport: % of land area in walking distance to a transit stop (2020)	Source Data Driven Lab	Missing data for Auckland, Cairo, Johannesburg, Mexico City, Mumbai, Riyadh, San Salvador	Accessible public transportation reduces socioeconomic barriers and reflects equality of infrastructure investment across demographics
	Rule of Law: Index rating on citizen perception of the strength of rule of law (2023)	Source World Justice Project	Only national data available; missing data for Riyadh	Cities have a responsibility to uphold the law, guaranteeing fair treatment and protection of the rights of their citizens without discrimination
Happy	Economic mobility: % change in monthly net salary (2018-2023)	Source Numbeo (self-reported survey)	2023 data missing for San Salvador	A sense of progression is often correlated with happiness; increased income can help provide necessities or discretionary spending which improves well-being and happiness
	Healthcare: Survey index indicating citizen perception of healthcare quality (2023)	Source Numbeo (self-reported survey)	Missing data for San Salvador	Health has a strong influence on happiness; improving quality of healthcare infrastructure is key way for city leaders to impact health of citizens
	Community: % of population within walking distance of a public open space (2020)	Source UN Habitat	Missing data for Jakarta, Shanghai, Rio de Janeiro	Communal spaces foster social interactions and a sense of belonging, which are highly correlated with human happiness. Access to safe and inclusive public spaces can increase social inclusion, reduce crime, increase tourism and improve environmental sustainability, as well as mental and physical health
Sustainable	Clean energy: Total	Sources	Where 2018-2023 CDP	The use of renewable energy to

	change in % of electricity generated from non fossil fuel sources (2023)	CDP-ICLEI for city-level data Our World in Data for national data.	<p>city-level data was not available, we used data for the closest neighboring years, including for for Casablanca (2020-2021), Copenhagen (2020-2023), Istanbul (2020-2023), Johannesburg (2022-2023), London (2018-2022), Mumbai, (2021-2023), New York (2018-2022), Poland (2018-2021), Singapore (2018-2022), Stockholm (2018-2022), Tokyo, Istanbul, Casablanca, Johannesburg, and Medellín</p> <p>Where city-level data was not available, national data (2018-2022) was used for Budapest, Cairo, Manila, Nairobi, San Salvador, Riyadh, Shanghai.</p>	produce electricity reduces a city's carbon footprint and generally reduces pollution levels.
	Water risk: Overall water risk score per the Aqueduct Water Risk Atlas (2024)	Source World Resources Institute	-	Freshwater is an essential resource for any city and increasingly at risk as shifting precipitation patterns increase the likelihood of both extreme flooding and prolonged droughts.
	Green space: Square meters of tree cover per person (2016)	Source Data-Driven EnviroLab	Missing data for Auckland, Cairo, Mumbai, and Riyadh	Trees help cool the environment and mitigate the effect of urban heat islands
Data-driven	Digital Infrastructure: Change in median mobile download speed (2021-2023)	Source Speedtest	TBD	Digital infrastructure enables access to data; quality digital infrastructure and access to data drives economic growth
	Technology base: McKinsey Smart Cities Report (sensors, communications, open data portals) (2018)	Source McKinsey & Company	Missing data for Budapest, Cairo, Casablanca, Istanbul, Johannesburg, Manila, Montreal, Riyadh, San Salvador, Warsaw; and only one time period available	This index reflects how well cities are leveraging hardware (sensors, communications infrastructure) to collect data and make that data publicly available (via an open data portal); this is key to fostering a data-driven city
	Citizen perception of applied technologies: IMD Smart City Index	Source IMD	Casablanca, Johannesburg, San Salvador	Ultimately, technology is useful to the extent that it benefits users and drives positive outcomes for the public at

	(2023)			large; this survey-based index assesses how cities leverage technology to improve quality of life
Innovative	Talent/creativity: Patents filed per capita (2016-2022)	Source World Intellectual Property Organization	Only national data available	Patent filings directly reflect the intellectual capacity and innovation in a country; they also reflect a legal system that protects intellectual property, which is important for fostering innovation
	Venture capital: Annual % growth in total VC funding by city (2017-2022)	Source Dealroom	- Only one year of data available for San Salvador	Startups are generally a major source of innovation; Venture capital funding is critical for enabling startups to grow and reflects the perceived quality of startups in a city; strong investment in a city also reflects investor sentiment that the city is a good place for startups to thrive.
	Universities per capita (2023)	Source University Guru	-	Universities are hubs for research and educational resources that attract talent and foster innovation.
Responsive	Urban services: % of urban households with safely managed sanitation (2017-2022)	Source WHO/UNICEF JMP	Only national data available	Sanitation is a basic government service and function and therefore can indicate the degree to which the government responds to its citizens' basic needs.
	Corruption Perceptions Index: citizen perception of public sector corruption (2023)	Source Transparency International	Only national data available	Corrupt players are by definition less responsive to the needs/ feedback of the average citizen. Corruption is a key barrier to development.
	Environmental investment: National government expenditures on environmental protection as a % of GDP (2022)	Source: IMF	Only national data available. Missing data for India, Mexico, Morocco, Nigeria, United States, Saudi Arabia. 2021 used data for Brazil, China, Colombia, Hong Kong, Shanghai, Philippines. 2015 data for Egypt. 2010 data for South Korea.	Government expenditures play a decisive role in a city's preparedness and ability to adapt to and mitigate the impacts of climate change.

What is the rationale behind each pillar and indicator?

Fair: Urban populations have been projected to grow most rapidly in cities with over 10 million citizens. But economic growth has not been equal, nor has it delivered equal benefits to all urban residents. Cities can aspire to be more equitable in how they allocate common goods and provide for the needs (housing, nutrition, and transportation) of their poorest and most marginalized citizens; they can also help ensure that citizens are guaranteed fundamental rights. Ideally, this pillar measures the availability and affordability of common infrastructure and individual necessities across incomes and demographics, as well as the degree to which cities protect the rights of all of their citizens.

- 1. Rent burden:** City-dwellers' rent-to-income ratio, or rent burden, tends to be highest among low-income and underrepresented minority communities. These groups are also more likely to rent, rather than own, a place of residence. Hence, rent burden can be a useful proxy to gauge socioeconomic disparities. This indicator tracks *total % change in the average rent of a one-bedroom apartment in a city's center* ([according to Numbeo](#)) as a *proportion of the inhabitant's income* ([according to Numbeo](#)). We track this ratio over time, from 2018 to 2023, to understand which cities are seeing significant increases or decreases in rent burden. Generally, cities that saw a big jump in rent burden are becoming prohibitively expensive for inhabitants. Those that saw decreases are becoming more affordable. Ultimately, however, cities should aim to converge toward the benchmark that rent should account for no more than 30% of a person's income. (Note all Numbeo data is self-reported from website visitors.)
- 2. Access to public transport:** This indicator measures *the percentage of land area that is within walking distance (400 meters) from a transit stop* as reported in [Urban Environmental & Social Inclusion Index](#). Access to public transport across rich and poor areas reflects the degree of equity in infrastructure investment, while public transportation enables lower-income groups (who are less likely to be able to afford cars) to more easily commute, broadening opportunities for both jobs and leisure activities. Additionally, public transportation can also create a less segregated city by improving interconnectedness. Public transit initiatives in Medellin offer an example of the transformative effect of improving public transport in poorer areas.
- 3. Rule of law:** An impartial and consistent enforcement of the law allows cities not only to improve safety, but also to protect citizens' fundamental rights—a strong indicator of fairness. We looked at the [World Justice Project's Rule of Law Index](#) for 2022 *country-level scores*, which ranks countries according to eight different factors, including constraints on government powers, absence of corruption, open government, fundamental rights, order and security, regulatory enforcement, civil justice, and criminal justice.

Happy: Cities' functionality, design, and purpose must be human-centric. City leaders can impact the happiness of residents in several ways, including by fostering community and trust (via public safety and access to communal spaces and resources), encouraging economic growth (creating an environment that allows businesses to thrive and increases availability of well-paying jobs), and providing quality infrastructure (e.g., public transport, health infrastructure). This pillar considers elements of a city that foster belonging and well-being, such as the extent to which cities create safe public spaces for communities to convene or how cities can build an environment where hardworking urban dwellers can accumulate wealth and improve their daily living conditions and socioeconomic status over time. Ideally, it would also measure other dependent variables that directly reflect well-being, such as suicide rates and mental and physical health outcomes, for which we unfortunately did not find strong data, but which we believe will become available in the coming years.

1. **Economic mobility:** A positive progression of an individual's socioeconomic status has been consistently linked with happiness, at least up to a point well above the median income of most cities. Given that growth in salaries can reduce the stress of financial hardship and enable citizens to purchase both necessities and discretionary expenditures, this indicator captures the *percentage change in monthly salary (after tax)* between 2017 and 2022. (Note all Numbeo data is self-reported from website visitors.)
2. **Healthcare quality:** Health is a key aspect of happiness, and one that cities can impact through targeted investment in health infrastructure. Resident perceptions of healthcare availability also reflect more broadly the extent to which residents feel that the city provides infrastructure and services that meet their fundamental needs. This indicator is based on a Numbeo Index surveying *resident perception of overall healthcare quality*, including factors such as healthcare professionals, equipment, staff, doctors, and costs. It provides an assessment of the healthcare infrastructure, services, and resources available in a specific city. (Note all Numbeo data is self-reported from website visitors.) Each entry in the survey is assigned a number within the range of -2 to +2, where -2 represents a strongly negative perception and +2 represents a strongly positive perception. Results are then presented on a scale ranging from 0 to 100 for a clear and straightforward understanding of the data.
3. **Community:** Access to safe and inclusive public spaces at no cost can increase social inclusion, reduce crime, increase tourism and improve environmental sustainability and public mental and physical health. All of these are likely to improve the happiness of residents, and yet these open spaces are at risk as urban populations expand and become more dense. The UN recognized the importance of preserving open spaces by including access to these spaces in urban areas within its Sustainable Development Goals for 2030. This indicator, collected by UN Habitat, measures *the percentage of the population within walking distance of a public open space*, with "walking distance" defined as 400 meters along a street network.

Sustainable: According to the [World Bank](#), cities account for over 70% of global GHG emissions; yet cities also present an enormous opportunity to combat climate change and increase sustainability. Higher density of people and infrastructure can lead to more efficient use of resources and improved waste management/circularity practices, while public transportation and shortened travel distances can reduce emissions. As the locus of global construction and as hubs of innovation, cities can drive sustainable practices and pioneer innovative and efficient building design. Indeed, the way cities build now will substantially impact global sustainability—in emissions, waste production, and water use—for decades to come.

- Clean energy:** Electricity production represents [40% of global GHG emissions](#); renewable energy sources generally produce little to no carbon emissions and fewer particulate emissions. Electricity infrastructure is often state-owned, so municipal governments are likely more able to control electricity production than any other major source of greenhouse gas emissions. As such, our indicator captures the annual increase in *the share of electricity generated from sources other than oil, gas, and coal*, according to data collected in partnership by the CDP and ICLEI - Local Governments for Sustainability in most cases, or Our World in Data where city-level data was not available.
- Water risk:** With the onset of global warming, precipitation patterns are changing and increasing the likelihood of both extreme flooding and prolonged droughts. Local water tables are under stress and once below a certain threshold, face a potential tipping point if they are pumped at a faster rate than they are replenished. The resulting water stress could lead to the rationing of potable water, water-borne disease, and a stop in industrial operations, which could have a significant humanitarian and economic impact in addition to the environment. The [World Resources Institutes' Aqueduct Water Risk Atlas](#) quantifies the multiple layers of water risk—from physical risks to regulatory—according to a 0-5 scale, with higher numbers signaling higher risk.
- Tree cover:** Vegetation and green spaces have long been a feature of urban design and landscaping. But in addition to aesthetic and social perks, it has numerous environmental benefits. For instance, more trees improve air quality and stormwater infiltration. They also help to counteract the urban heat island effect, which could result in [1-3°C](#) higher temperatures in cities versus rural areas. A 2023 study published in *The Lancet* looked at 93 European cities and estimated that increasing tree coverage to 30% of a metropolitan area could reduce temperatures by [0.4°C on average](#). Moreover, trees and green spaces help maintain biodiversity by providing refuge to species, thereby improving the sustainable footprint of a city. Our Dashboard sources data on square meters of tree cover per person living in each city from the [Urban Environment & Social Inclusion Index](#).

Data-driven: Data-driven cities add digital intelligence to existing urban systems, making it possible to do more with less. [McKinsey estimates](#) that smart city applications can improve some key quality-of-life indicators (e.g., health, safety, environmental quality, time, and convenience) by 10-30%. Tech and data can enable citizen engagement and improve urban planning processes and policy decisions. For example, data-driven cities can leverage data on population trends, traffic patterns, and infrastructure uses to better allocate resources and provide public services to meet the needs of their citizens. When cities function efficiently, with strong digital infrastructure, they also become more productive places to do business. This pillar aims to measure how well cities are improving their digital infrastructure and adopting and using technology.

1. **Digital infrastructure:** Strong digital infrastructure enables cities to respond to the needs of their residents. Given the widespread use and availability of smartphones, our indicator captures data on the *annual average of the monthly median mobile download speed (Mbps)* in a city.
2. **Technology base:** Our indicator is a *ranking of 50 cities in the 2018 [McKinsey Smart Cities Report](#)*, which scored cities according to how well they are leveraging hardware, such as sensors and communications infrastructure, to collect data and make that data publicly available via an open data portal. To evaluate each city's technology base and applications, the report relied on local government sources, published case studies, academic research, media accounts, interviews with experts and service providers, and central databases. Building out this technology base is a key first step to building the ideal smart city.
3. **Applied technologies:** Smart cities are people-focused cities. This additional *ranking from IMD Smart Cities Index* provides the perspective from the user of the technologies in question. By surveying 20,000 citizens, it focuses on citizen experience of smart cities, and tries to understand how well tech-based solutions are addressing their biggest concerns as citizens. There are 2 pillars (structures and technologies) and 5 topics for each pillar (health, mobility, activities, opportunities, governance). Survey questions are phrased as statements, with respondents asked to state their degree of agreement. For example, a question on health within the structures section is "Basic sanitation meets the needs of the poorest areas", whereas the equivalent question in technology is "Online reporting of city maintenance problems provides a speedy solution". [Further details here](#).

Innovative: The greater density of people, ideas, and resources in cities have made them centers of innovation throughout history. Cities that foster innovation tend to grow and prosper; in order to create this environment of innovation, cities must develop, attract, and retain remarkable individuals and organizations, and must attract sufficient capital to bring innovative ideas to fruition. Cities can also provide opportunities for rapidly testing, iterating, and developing these new ideas to see what works

—and what does not—on a city-wide scale. This pillar contains indicators on how cities attract and train talent (e.g., high quality education) and provide capital for innovation, while also measuring the output of that innovation (e.g., patents, VC exits, and valuations).

1. **Talent/creativity:** Patent filings directly reflect the intellectual capacity and innovation in a country; they also reflect a legal system that protects intellectual property, which is important for fostering innovation. While we could not find city-level data for this indicator, we believe *patents filed per capita* at the national level (from the [World Intellectual Property Organization](#)) is a viable proxy, given they tend to be a country's most significant economic and industrial hubs.
2. **Venture capital:** Startups are a key piece of a city's innovation economy. Growth in venture capital thus indicates a healthy entrepreneurial ecosystem, with a supportive regulatory environment and an ability to incubate and attract talent. We have gathered *total VC funding (2015-2023)* in each city according to [dealroom.co](#), and then calculated the average annual growth based on a 3-year rolling sum, due to the lumpiness of the data.
3. **Education:** Educational institutions are key for attracting and producing talent; they also create an environment for fostering innovation by concentrating and providing resources such as scientific equipment, and by bringing together a large number of young, talented people. Our indicator looks at *the number of universities per one million people* in each city. The number of universities was sourced in 2023 from the [UniversityGuru website](#), which aims to be the most comprehensive source for information on all university, program studies, degrees, and other relevant information for students. [UniRank](#) was also used as a corroborating source.

Responsive: Cities need to adapt to meet the needs of their citizens. This is especially important in the post-pandemic era, as municipal governments receive vast funds to catalyze a successful and sustained recovery. In that vein, it is imperative to ensure citizens have a real voice in shaping and improving the urban centers in which they live, and that public, private, and civic leaders address these needs. This pillar focuses on how well cities are anticipating, understanding, and responding to the needs of their citizens. Ideally, it would include city-level indicators such as civic engagement, voter turnout, referendums, speed of passing laws, and corruption; but as we were unable to obtain these indicators at a city level, we had to rely on national data.

1. **Urban services:** Safely-managed sanitation is a fundamental service that city governments provide. Residents are severely impacted by unsafe or poorly managed sanitation, so a responsive city government will provide safe sanitation to all of its residents. This indicator captures UN data on the *proportion of urban households with safely managed sanitation*.

- 2. Corruption:** Corrupt governments put their personal interests above those of their citizens, lacking accountability, and thus are non-responsive to the citizenry's needs. Our indicator looks at the *rankings of [Transparency International's Corruption Perceptions Index](#)*, which measures how experts and businesspeople view corruption in each country. While city-level corruption data would be ideal, this is a powerful proxy given the close relationship between national, regional, and municipal governments, how significant portions of city budgets rely on national funds, as well as the trickle-down effects and mindset of such practices.
- 3. Environmental investment:** Tracking government expenditure on environmental protection and climate adaptation is crucial for evaluating the stability and resilience of cities. It reflects a city's commitment to safeguarding its environment, economy, and population against present and future challenges. This indicator looks at national government expenditures on environmental protection as a % of GDP, per the [International Monetary Fund](#), in order to gauge a city's preparedness and ability to respond to the impacts of climate change.

About The Bloomberg New Economy Dynamic Cities Coalition

The Bloomberg New Economy [Dynamic Cities Coalition](#) is the evolution of the [Cities Council](#), a working group created in 2021 as a response to building better cities in the wake of the COVID-19 pandemic. After years of lockdowns, the Cities Coalition is focused on redefining a sustainable and resilient growth trajectory for cities of the New Economy by tracking, evaluating, and spurring a dynamic recovery. This Dashboard was launched at [Sustainable Business Summit in London on April 25, 2024](#).