

**Bloomberg  
New Economy  
Forum**



# The Bloomberg New Economy Dynamic Cities Framework

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# Building Dynamic Cities:

## A New Global Framework

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. Toward that end, the Bloomberg New Economy Cities Council presents a Dynamic Cities Framework for evaluating, tracking, and advancing the progress of New Economy cities as sustainable, vibrant, responsive hubs for talent and innovation. Since what gets measured ought to be managed, we also offer some early ideas on how to meaningfully move the needle on key metrics of dynamism.





## This Dynamic Cities Framework has been created by the Bloomberg New Economy Cities Council:

- + Yvonne Aki-Sawyers OBE: Mayor of Freetown
- + Greg Clark CBE: Group Advisor, Future Cities and New Industries, HSBC
- + Norman Foster OM: Founder and Executive Chairman, Foster + Partners
- + Miguel Gamiño: Executive Vice President, Global Cities – Enterprise Partnerships, Mastercard
- + Bjarke Ingels: Founder, Bjarke Ingels Group (BIG)
- + Hugh Lim: Executive Director, Centre for Liveable Cities (CLC)
- + Fanyu Lin: CEO, Fluxus
- + Edu Lyra: Founder & CEO, Gerando Falcões
- + W. Gyude Moore: Senior Policy Fellow, Center for Global Development (CGD)
- + Eduardo Mufarej: Founder & Chairman, RenovaBR
- + Carlo Ratti: Director, MIT Senseable City Lab
- + Amit Singh: Co-Founder, Shuttl
- + S. Gregory Smithies: Partner – Climate Tech, Fifth Wall
- + Jan Vapaavuori: Former Mayor of Helsinki
- + Jonathan Woetzel: Senior Partner, McKinsey & Company; Director, McKinsey Global Institute
- + Haibei Yi: Senior Partner, Vanke Group; Head, Vanke 2049 Future City Lab
- + **Council Co-Chair: YU Liang, Chairman, Vanke**

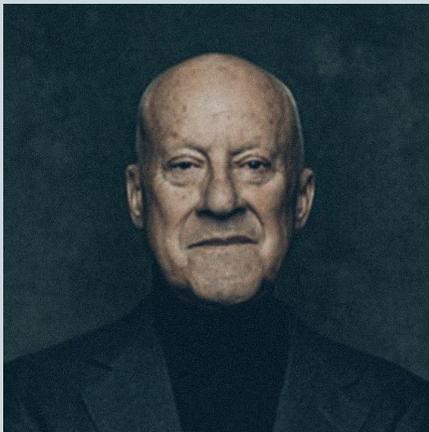
Bloomberg New Economy would like to thank all the Cities Council members and our Knowledge Partner, McKinsey & Company



## Why the world needs a *dynamic* cities framework

Cities have long been and will remain the fundamental engines of human progress. Today, 55% of humanity lives in cities, a number projected to grow to 60% by 2030. Just 600 cities fuel more than 65% of global economic growth, while 100 of them account for roughly 40%.

Still, the past 18 months have exacerbated old challenges and highlighted new ones. Even before the COVID-19 pandemic, cities were struggling to cope with massive rural to urban migration, intensified in some regions by refugees from climate change. The pandemic underscored the urgent need to mitigate attendant challenges such as inequality. (One data point: in Mumbai more than 50% of slum dwellers were exposed to the virus, versus just 16% outside). In addition, COVID-19 related lockdowns, which spurred the rise of remote work and prompted a potential rethink of office and commercial space, may continue to reshape urban centers as the pandemic becomes endemic. (A second data point: 52% of employees surveyed by McKinsey would prefer a more flexible working model post-pandemic).



*“COVID-19 will accelerate trends that already exist, such as those that have long been debated in the past, including the greening or pedestrianization of cities.”*

- Lord Norman Foster

Bloomberg New Economy Forum, 2020



To ensure cities retain and improve their ability to attract talent and enhance the lives of citizens, the Bloomberg New Economy Cities Council has launched work on a new Dynamic Cities Framework: a framework that aims to forge a real-time focus on the most important set of considerations for society's ability to innovate through the next century.

This framework builds on existing urban indices and rankings, but then goes beyond them in four important ways:

- + 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 rather Kinshasa).
- + It aims to capture improvements and positive change, versus simply highlighting which cities are already furthest ahead on any given metric.
- + It is holistic, with six pillars representing different aspects of city success, as opposed to a single emphasis (e.g., on sustainability, entrepreneurship, and the like).
- + It will be dynamic, with inputs and weightings that change as our collective understanding advances about which outcomes matter most according to the size and stage of development of each city.

The New Economy Cities Council aims to use this framework to:

- 1) promote standardized data collection at the city level;
- 2) increase transparency within governments; and,
- 3) empower urbanites with information to demand more from their governments.

Consider the example of air quality in Beijing. Before measurement, residents were not fully aware of the poor quality of their air, but, once metrics became widely available, leaders took action and air quality improved dramatically.





# What's in the framework and how we built it

The Dynamic Cities Framework consists of six pillars, each of which has input metrics (measures of actions or conditions that help drive positive change) and output metrics (which capture how well cities are doing). While the pillars are interrelated, they can be categorized into two groups: those that provide a foundation of stability (Fair, Sustainable, Happy) and those that are drivers of change (Innovative, Data-driven, and Responsive).

- + **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. Health and environmental crises affect different income levels unevenly. If urban residents lack basic housing and access to infrastructure, inequality and segregation increase, as housing in the right place and at the right price are key to unlocking the opportunities of the urban core. How do cities deliver urban public goods such as housing, education, and healthcare (including public health) as fundamental human rights?
- + **Sustainable:** Across construction, real estate, mobility, and industry, cities have an outsized influence on the global drive towards sustainability. Increasing urbanization allows cities to realize economies of scale when creating and commercializing solutions, from decentralized energy generation and resource efficiency to public transportation. As the locus of global construction, cities can popularize sustainable practices and hasten the use of sustainable materials, as well as pioneer innovative and efficient building design. Indeed, the way cities build now will determine urban sustainability—in emissions, waste production, and water use—for decades to come. How can we increase the efficiency of public transport systems and increase access across the population? How can we make urban economies more circular, reducing raw material costs and ensuring a healthier planet? What are the implications for legacy infrastructure systems and their funding?



- + **Happy:** Cities must keep people's well-being at the heart of their mission. Several factors upon which city leaders have influence play an outsized role here, including fostering a sense of community and establishing a foundation of trust that can be reinforced by reliable transportation systems that reduce commute times, the possibility of upward mobility, and ready access to public health services. How can cities create safe public spaces for communities to convene? How can urban mobility systems be more seamless and reliable? How can cities build an environment where hard-working urban-dwellers can accumulate wealth and improve their daily living conditions and socioeconomic status?
- + **Innovative:** Cities liberate human potential as cultural centers that nurture creativity and invention. Cities can continue to do so by creating spaces and mechanisms that develop, attract, and retain remarkable individuals and organizations. Cities can also provide opportunities for rapidly testing, iterating, and developing new ideas to see what works—and what does not—on a city-wide scale. How can city spending be directed to areas of highest opportunity for human development, in both mature and developing regions?
- + **Data-driven:** Data-driven cities add digital intelligence to existing urban systems, making it possible to do more with less. Connected applications put real-time, transparent information into the hands of users to help them make better choices. These tools can save lives, increase safety, and reduce disease burden. They can save time, reduce waste, and even help boost social connectedness. When cities function more efficiently, they also become more productive places to do business. How can cities improve their hardware and their software? How can they improve adoption and usage? How can they deliver the critical necessities of urban life, including environment, safety, convenience and health through smart models that deliver 10–30% more benefits?



- + **Responsive:** Cities are at their best when they inspire and then meet the needs of their citizens. 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 respond to these needs. How can cities foster civic leadership? How will cities build strong frameworks for community consultation? How can they ensure that interactions between urbanites and city government will be effective, efficient, and productive? What governance models are needed to facilitate this?

In crafting this framework and the associated metrics, New Economy Cities Council Members wanted to ensure that publicly available data already exists across a foundational set of input and output metrics. Our goal is to highlight what we believe are the important items to measure to drive productive change, while avoiding the expensive and arduous task of new primary data collection at this stage in our project.



*“There is no zero-sum between digital platforms and the physical city. Digitalization simply means cities becoming more hybrid. Too many voices are prophesizing ‘the end of the city’ as a result of COVID-19 and the rapid digital acceleration. I don’t see that. Whenever new technologies have emerged over the past century, people have predicted the death of cities. But on each occasion cities have grown stronger, utilizing such technologies to reinforce the value of proximity, physical interactions, and shared systems, services and spaces”*

**- Professor  
Greg Clark CBE**

**Conversations, CLC ([link](#))**



This framework also identifies links to the UN's Sustainable Development Goals (SDGs), which are already serving as guiding principles for many urban development projects and policies. These are covered in the graphic containing all metrics, but a few examples worth highlighting are SDG 7: “Affordable and clean energy – ensure access to affordable, reliable, sustainable, and modern energy for all;” SDG 10: “Reduced inequalities – reduce inequality within and among countries;” and SDG 11: “Sustainable cities and communities – make cities and human settlements inclusive, safe, resilient, and sustainable.”

As with any framework that simplifies something as diverse as cities into a finite set of metrics, ours too faces challenges. No two cities are alike. The definition of “public transport” in New York City, for instance, is vastly different from the definition in Mombasa, where it would include matatus (the colloquial term for private buses). We are aware that these metrics will be an imperfect fit, but we hope they provide a far more helpful guide for urban planning and development. Finally, we hope cities around the world will retain the ambition set forth in this framework, but we also know there are many different and exciting paths to achieving progress against these metrics.



*“We want these metrics to be ambitious but we don’t want them to be unattainable. We also know that there are many paths: if we can help align on the goals, cities and countries can determine their own ways to make progress against those goals. We don’t want Freetown or Monrovia to feel that the index was created only for London.”*

**- W. Gyude Moore**

As a next step, we intend to leverage discussions at the 2021 New Economy Forum in Singapore and over the following months to turn this framework into a true index. Specifically, we aspire to create an appropriately dynamic model that weighs metrics and pulls in data to create a “live” view of how dynamic cities are performing across the framework. We then hope to leverage this view to promote real-time awareness of cities’ progress, including setting up two-way “video walls” where, for example, urbanites in Moscow might be able to see a live feed of Jakarta or São Paulo as well as how those cities are progressing against various metrics.

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	Fair	Sustainable	Happy	Innovative	Data-Driven	Responsive
<b>Input Metrics</b>	<ul style="list-style-type: none"> <li>- Investment (\$) in affordable housing</li> <li>- Digital inclusion</li> <li>- Public transportation stops in low-income neighborhoods</li> </ul>	<ul style="list-style-type: none"> <li>- Total area (%) covered by parks/green space</li> <li>- Incentives for clean/efficient energy consumption</li> <li>- Access to renewable energy generation</li> </ul>	<ul style="list-style-type: none"> <li>- Investment in mobility and traffic control</li> <li>- Upward mobility</li> <li>- Mental health and wellness promotion</li> </ul>	<ul style="list-style-type: none"> <li>- Entrepreneurship density</li> <li>- # incubators / accelerators</li> <li>- Venture capital invested</li> <li>- Programs for migrant integrations</li> </ul>	<ul style="list-style-type: none"> <li>- Digital infrastructure for 5G coverage</li> <li>- Adoption / usage of smart tools in government departments</li> </ul>	<ul style="list-style-type: none"> <li>- Accessibility of government documentation</li> <li>- Community consultation process</li> <li>- Investment in redevelopment</li> </ul>
<b>Output Metrics</b>	<ul style="list-style-type: none"> <li>- Rent burden as measured by avg net salary to house price; income to price ratio</li> <li>- # of public wifi hotspots per capita</li> <li>- % users of public transport</li> </ul>	<ul style="list-style-type: none"> <li>- Average annual AQI, PM 2.5</li> <li>- Basic GHG emissions across the three key emissions sectors: stationary energy (mainly buildings), transportation, and waste</li> <li>- % local renewable energy generation</li> </ul>	<ul style="list-style-type: none"> <li>- Average commuting time</li> <li>- 5-year rate of wage growth</li> <li>- Well-being Adjusted Life Year (WALY) (&gt;5 year update)</li> </ul>	<ul style="list-style-type: none"> <li>- Number of startups per capita; startup survival rate</li> <li>- Patents filed per capita</li> <li>- GDP per capita</li> <li>- Net migration rate (population growth by city)</li> </ul>	<ul style="list-style-type: none"> <li>- % access to 5G</li> <li>- % IT-capable staff in municipal government departments / agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Duration of government interaction (e.g. obtaining driver’s license, registering as a resident, etc)</li> <li>- Participation in local council meetings / hearings</li> <li>- Rate of change in city space uses (built up area change per)</li> </ul>
<b>SDGs</b>						



## Turning measurement into action

In the wake of the pandemic, cities have an opportunity to rethink and revitalize their role as engines of the global economy via a people-centric, methodical approach to urbanization. This Dynamic Cities Framework, and ultimately Index, can help guide and inspire stakeholders at every level—municipal, regional, and national government leaders, private sector executives, community organizers and activists—to drive change.

We think of our Dynamic Cities Framework as a portfolio of outcomes, all of which are shared to at least some extent by every city and region, but one where specific priorities and paths forward will vary. Ultimately, what the Bloomberg New Economy Cities Council wants to identify and promote are cities that, by constantly evolving and breaking ground, can answer unmet needs—and shape the evolution of the New Economy.

Below, we offer a few initial examples of how Council members are already part of building this future in some of the cities where they live or operate:



## Spotlight

**Edu Lyra** founded the Gerando Falcões Network, a social development organization designed to improve quality of life in —and eventually eradicate— Brazilian favelas. Along with services in education, economic development, and citizenship, Lyra’s organization provides programming to systemically transform favelas. For example, current undertakings like Bolsa Digital and Favela 3D aim to digitize and modernize communities, while Falcons University works to train leaders. Thus far, the Gerando Falcões network has impacted over 200,000 Brazilians across 1,545 favelas.

## Fair

### **Number of public wifi hotspots per capita**

In his role as CTO for the City of New York, Miguel Gamiño oversaw the development of LinkNYC, which provides free high-speed Wi-Fi across the five boroughs via public-use terminals on city sidewalks. Along with internet connectivity, each link supports phone calls and device charging, and contains a tablet for access to city services, maps, and directions. LinkNYC reached one million users less than one year after its 2016 launch and has over 10,000,000 users since launch.

### **Rent burden; investments in affordable housing**

- + Fanyu Lin’s World Home Foundation incorporates data into improving cities in several ways. Data collected as part of an ESG scoring framework can indicate the “health” of cities’ overall affordable housing sector. Data to be collected and analyzed includes:
  - + Rent burden as measured by average net salary to house prices; income to price ratio
  - + Percentage of affordable housing providers tracking their ESG
  - + Average rating of providers on the system
  - + Actual size and number of investments made in housing, as well as the size of the construction pipeline



## Sustainable

### Incentives for clean/efficient energy consumption

- + Bjarke Ingels and his architectural design firm BIG piloted the concept of hedonistic sustainability, which suggests sustainable developments can simultaneously be more efficient and more enjoyable than traditional alternatives. Amager Bakke, a new waste-to-energy incineration plant in Copenhagen, Denmark designed by BIG, embodies this philosophy; along with highly advanced and sustainable power generation capacities, the complex hosts a 1,500-foot artificial ski slope and an 85-meter-tall climbing wall. The plant recycles waste from approximately 68,000 companies and 600,000 citizens, which makes up over 10% of Denmark's population.
- + Fanyu Lin founded Fluxus in 2013 and leverages prefabricated construction powered by digital technology to increase efficiency relative to traditional modes of development. Along with reduced construction times, digitally driven prefab development tends to:
  - + Increase productivity by eliminating mid-process decision making
  - + Limit waste through factory components production
  - + Reduce emissions in construction by up to 60%.
- + Greg Smithies co-leads the climate technology investment team at Fifth Wall, the first and largest venture capital firm focused on Built World technology. The Fifth Wall model has brought together over 70 corporates across 15 countries, into the largest network of its kind in the world. The Climate Tech Fund invests in technologies aimed at reducing the carbon footprint of the construction and real estate sectors, which combined account for over 40% of the world's greenhouse gas emissions. The Fund invests broadly across the lifecycle of building technologies, from raw materials to construction technology to operational efficiency and waste management. Its investments to date include companies such as Turntide Motors (high efficiency HVAC motors), and Icon (3D printed buildings.)



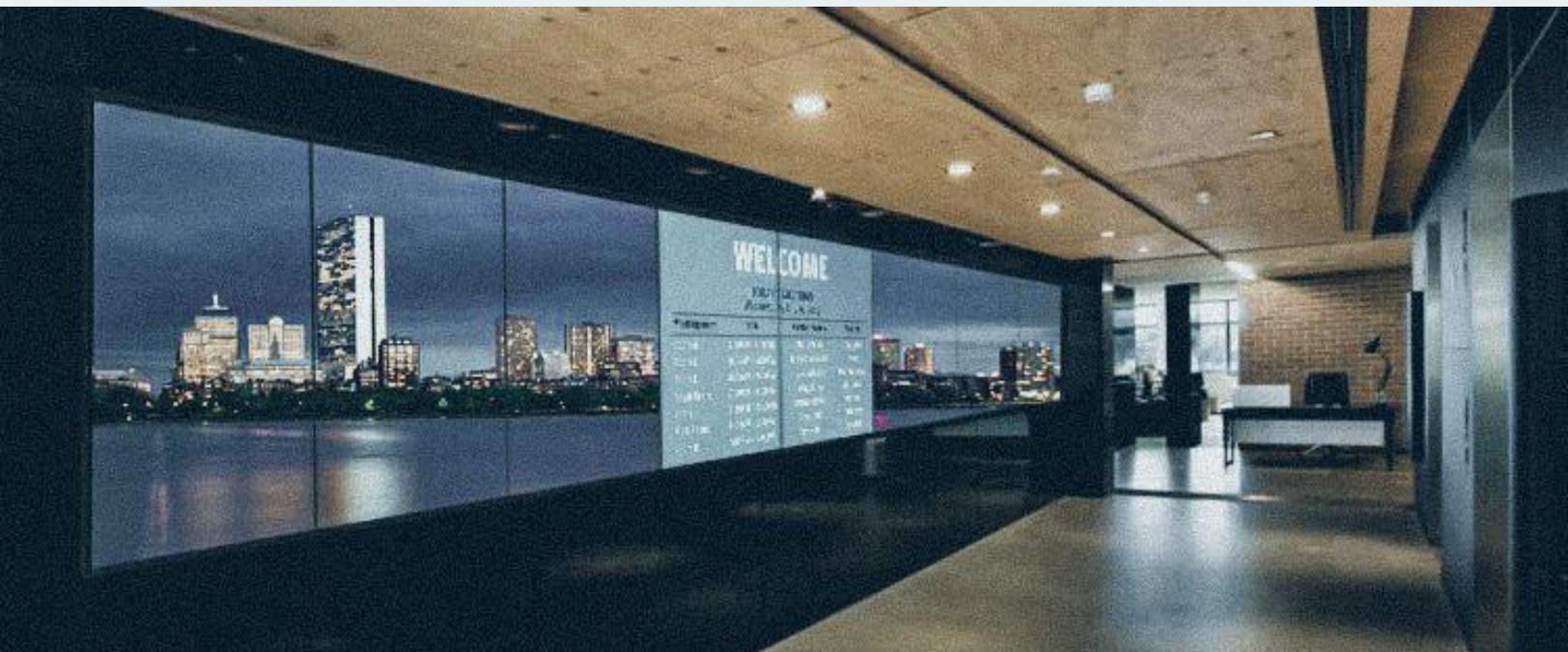
## Sustainable (cont.)

### Incentives for clean / efficient energy consumption

- + Also in 2021, Carlo Ratti Associati unveiled plans to build the world's first "farmscraper": a 218-metre-tall skyscraper in China that would grow crops using hydroponics, containing spaces for offices as well as for selling and consuming produce. The Jian Mu Tower would occupy the last available plot in Shenzhen's business district, completing the city's central skyline. "The vertical hydroponic farm embraces the notion of zero food miles in the most comprehensive sense," Carlo Ratti told *Dezeen* magazine. "Crops cultivated in the tower are sold and even eaten in the same location, which helps us conserve a great deal of energy in food distribution." The building is estimated to produce 270 tons of food per year, which is said to feed roughly 40,000 people.

### Total area covered by parks / green space

- + Singapore's Active, Beautiful, Clean Waters (ABC Waters) program aims to improve water quality and enhance liveability by transforming Singapore's canals, rivers, and reservoirs into beautiful recreational green and blue open spaces where people can be close to water and naturally become stewards of the waterways and water bodies. By 2018, 75 projects have received the ABC Waters Certification.





## Spotlight

**Yi Haibei** on Vanke's 2049 Future City Lab project: *"One thing we are thinking about is building up a new urban form that is a coherent but decentralized set of closely related urban units. These units will be mixed-use, combining living, learning, working, everything—a similar idea to the 15 minute city. I actually think this is a very good from a resilience perspective as well: if a disaster such as a pandemic occurs, parts of the city will be influenced but other parts will be able to continue operating."*

## Innovative

### Number of startups per capita / startup survival rate

- + AI-powered Dealflow Finland service connects directly with Finnish startups and growth companies that are preparing for an investment round. The investor can create a profile on Dealflow and use different criteria to identify the most relevant companies. Dealflow also enables automated target hunting and instant notifications when suitable companies match the investor's profile. Launched in 2019, the free of charge Dealflow service provided by Business Finland has already matched 350 investors and companies.
- + Helsinki Mayor Jan Vapaavuori spearheaded an initiative to launch and develop the leading start-up hub in the Nordic countries, Maria01. Broadly, the city has developed an array of services for start-ups and scale-ups. The aim of the development was not only to create a physical location, but a supportive community of innovation. More about Helsinki's services can be found [here](#).



## Data-driven

### % IT-capable staff in municipal government departments / agencies

- + In 2017, Mayor Jan Vapaavuori started an education program in which the City of Helsinki's top and middle managers were educated in AI and data capabilities. The program supports skill building and knowledge sharing in situations where many of the city's top managers were not educated about the possibilities of AI and data.

### Adoption / usage of smart tools

- + Carlo Ratti's Senseable Cities Lab at MIT employs design and data science to study and anticipate innovations in the built environment. In May 2021 [the team used handheld LiDAR to map Rocinha, Brazil's largest favela](#). The mapping exercise helped researchers better understand the intricacies of infrastructure in the informal settlement, allowing them to predict which areas that might be prone to landslides and also to predict how the settlement might develop in the future.



## Spotlight

**Hugh Lim** is the executive director of Singapore's Center for Liveable Cities (CLC), which has developed the Singapore Liveability Framework that groups key components into systems and resident-centric outcomes, namely Quality of Life, Competitive Economy, and Sustainable Environment. CLC has applied this framework to global cities through research and training programmes. CLC is also embarking on a study to better understand the relationship between density and liveability.



## Spotlight

**Yvonne Aki-Sawyers OBE** was sworn-in as Mayor of Freetown in May 2018 with a commitment to transform Freetown using an inclusive, data-driven approach to address challenges in the city. A finance professional with over 25 years of private sector experience in strategic planning, risk management consulting and project management, Mayor Aki-Sawyers's public sector engagement began with her work during the 2014-2015 Ebola epidemic and her subsequent role as Delivery Team Lead for the second phase of a multi-stakeholder programme to drive socio-economic recovery in Sierra Leone post Ebola.

## Responsive

### Community consultation process

- + Mayor Yvonne Aki-Sawyers's Transform Freetown initiative identifies 11 priority sectors for integrated urban development and constitutes the most comprehensive zone by zone analysis of service satisfaction undertaken by a Sierra Leone city council. In developing the initiative, the City of Freetown assessed public service delivery needs via 310 meetings with Freetonians and engaged 39 NGOs and 39 government ministries.

### Investment in redevelopment

- + As Singapore reviews its long-term land use plans for the first time in 50 years, the Urban Redevelopment Authority (URA), the national planning authority, is seeking the public's opinions through a year-long consultation exercise initiated July 2021. One key focus of the review is to allow future generations to adapt and adjust to disruptions such as COVID-19. Alliances for Action (AfAs) have been convened, where workgroups led by citizens, community groups, and even industry, work together to pilot ideas with the support from the Government.

## Happy

### Investment in mobility and traffic control

- + Shuttl, founded by Amit Singh in 2015, is an app-based shared mobility provider headquartered in Gurugram, India. The company operates more than 350 bus routes with a fleet of 2,000 vehicles, which users can access via mobile app. Currently, Shuttl provides over 100,000 shared rides per day in seven Indian cities, reducing greenhouse gas emissions and urban congestion simultaneously through resulting decreases in private vehicle use. Shuttl is backed by Amazon, Toyota, and Sequoia capital, and was recently acquired by Chalo, an Indian digital mobility company.



## Spotlight

**Eduardo Mufarej** is one of the founders of RenovaBR, a non-profit that aims to better prepare Brazil's lawmakers, members of executive branches and other public servants for leadership in their community, including organizing convenings, running classes and a number of webinars and podcasts to share best practices among them. The educational program receives tens of thousands of applications each year, and provides training to hundreds of new fellows who range in diversity in race, gender, political viewpoint and Brazilian geographic representation.

# Conclusion

Just as cities are dynamic, this framework is dynamic. We welcome feedback and input from all New Economy Forum delegates as we continue to develop and refine this framework.

Please reach out with your input or feedback to Bloomberg New Economy Councils Director Carolina Aguilar at [caguilar23@bloomberg.net](mailto:caguilar23@bloomberg.net).





**Thank you**