Time to Thrive

Urban Resilience Shifts from Trend to Necessity

Ideation Center Insight

To Inspire
and Enable
The Next Generation
of Governments

The World Governments Summit is a global platform dedicated to shaping the future of governments worldwide. Each year, the Summit sets the agenda for the next generation of governments with a focus on how they can harness innovation and technology to solve universal challenges facing humanity.

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Executive Summary

The COVID-19 pandemic exposed the urgent need for cities worldwide to become more resilient. Since then, that need has only grown. Urbanization is making city populations swell, and growth is projected to continue in the coming decades. At the same time, cities face a wide range of threats—both natural (increasingly due to climate-related factors) and human-caused (such as traffic, crime, income disparity, and unemployment)—that are growing in frequency and severity.

Strategy&, in partnership with the World Governments Summit (WGS), has developed an evidence-based urban resilience framework that enables cities to assess their:

01   Exposure to Hazards

02   Vulnerabilities

03   Institutional Capacities to Respond, Recover, and Transform in the Face of Shocks

The framework is supported by 131 key performance indicators (KPIs) and a detailed qualitative checklist.

In 2020, we introduced this framework and published our assessment of urban resilience in 20 cities, including 11 in the Middle East and North Africa (MENA) region. In this edition, our second assessment, we expanded the base of cities to 50. This report presents the results of our analysis. We find that although cities and regions have made notable strides to become more resilient over the past few years, many still need to improve. The report also offers case studies of specific measures that cities around the world—such as Beijing, Dubai, New York, Riyadh, and São Paulo—are taking to boost their resilience.

Last—and most important—our analysis suggests that the various dimensions of urban resilience are interrelated. Enhancing even one dimension has positive implications that cascade into other aspects of city life. In particular, cities that invest in innovation can trigger a range of benefits in other areas, creating a multiplier effect in terms of resilience. Innovative cities are more effective at solving problems, building strong and stable economies, and responding to stressors and disruptions. That is a powerful lesson to city leaders seeking to prioritize specific initiatives among many: Innovation is akin to a "master capability" that enhances other types of capabilities and makes cities more resilient overall.

Redefining Norms

The Post-Pandemic Evolution

The COVID-19 pandemic highlighted cities' systemic weaknesses, overwhelming healthcare systems and triggering economic repercussions. Businesses closed, unemployment rates soared, and cities had to navigate the balance between public health and economic activity.

The pandemic is now largely in check, but even as cities deal with its aftereffects—in areas such as accelerated digital adoption, the shift to telework, and broader e-commerce—they face another set of disruptors.

Climate Change and Environmental Stability

Climate change threatens cities with extensive and multifaceted risks. Storms and other natural hazards are expected to increase in frequency and intensity, affecting cities' economies, the delivery of basic needs, and every other aspect of urban life.

Artificial Intelligence (AI) and Automation

AI and automation can radically transform industries, economies, and daily life by streamlining processes, enhancing decision-making, and unlocking new possibilities across sectors. However, these technologies bring with them ethical dilemmas, job displacement, and the need for robust governance.

Demographic Shifts

Some regions are experiencing an aging population; others have a large youth population. Both scenarios lead to significant changes in labor markets, healthcare demands, and generational dynamics. Cities need adaptive policies and innovative solutions to manage the evolving needs and expectations of their diverse demographic groups.

Connectivity and Globalization

Connectivity and globalization are breaking down geographic barriers and making nations more interdependent. Although not a new source of disruption, globalization accelerates the spread of ideas, cultures, and innovations, but also increases economic volatility, cultural homogenization, and complex global issues that require coordinated international responses.

All the elements above make it imperative for cities to be proactive, adaptable, and agile in the face of disruption. Urban resilience will need to evolve from a priority that emerged during the pandemic to an integrated core imperative in cities' strategic agendas, seen either as related to specific vulnerabilities or through a broader and more comprehensive lens.

Indeed, many cities have started responding to their vulnerabilities to shocks by adopting either holistic or sector-specific urban development measures. Examples include the following:

Rotterdam creates a family-friendly city.
In the Netherlands in 2022, Rotterdam launched health-related initiatives focusing on preventive care and promoting healthy lifestyles among families and children.

Tokyo localizes its economy. Japan set aside US$2.2 billion in 2020 in its COVID-19 economic recovery package to pay 87 companies to shift their production back home or to Southeast Asia, making supply chains more resilient.

Lazio enhances cyber resilience. After a cyberattack affected a key part of government infrastructure needed for vaccination booking, Italy's Lazio region released a digital agenda (2022–26) aimed at making the government more cyber-resilient.

Fez launches a holistic strategy. In Morocco, Fez created a roadmap of initiatives, dubbed the Fez 2022–27 action plan, that included insights from the pandemic. The aim is for the city to become safer, greener, more resilient, and more inclusive— part of Morocco's broad urban resilience strategy.

Revitalizing Resilience

The Second Edition of the Urban Resilience Index

Given the increased scope and severity of potential disruptors, Strategy&, in partnership with the World Governments Summit (WGS), developed the Urban Resilience Index to help cities assess and improve their resilience. We have updated the index and increased the sample size of cities from 20 to 50. The core methodology remains the same.

Brief Recap

Defining Resilience
Strategy& and the WGS define "urban resilience" as the ability of cities to respond, recover, and transform in the face of any adversity, disaster, or stress.

Respond
The ability to anticipate, cope with, and protect against shocks and stresses, manage livelihoods, meet urban society's basic needs, and maintain a baseline of economic activity.

Recover
The ability to mitigate the impact from a shock and adapt to changing conditions in a flexible and agile manner.

Transform
The ability to advance economically, socially, and technologically with new systems, structures, and reconfigurations.

Urban resilience is assessed through an evidence-based framework that enables cities to evaluate their: 1) exposure to hazards; 2) vulnerabilities; and 3) institutional capacities to respond, recover, and transform in the face of shocks. The framework is supported by 131 key performance indicators (KPIs) and a detailed qualitative checklist (see Exhibit 1). This structure has remained consistent with that of the initial report.

EXHIBIT 1: A COMPREHENSIVE, EVIDENCE-BASED FRAMEWORK TO ASSESS CITIES' RESILIENCE

URBAN RESILIENCE INDEX 2022

Assessment Dimensions

1 Reduce Exposure to Hazards

NATURAL — 9 Indicators
Extreme Weather Incidences | Floods | Landslides | Droughts | Wildfires | Earthquakes | Pandemics and Epidemics | Insect Infestation

HUMAN-CAUSED — 10 Indicators
Geopolitical Tensions | Homicide | Air Pollution | Cyberattacks | Technological Hazards

2 Minimize Vulnerabilities

BASIC NEEDS — 28 Indicators
Emergency Care | Food Security | Energy Security | Water Security | Housing | Safety and Justice

SOCIETY — 31 Indicators
Population at Risk | Education | Physical and Mental Health | Social Protection | Social Inclusion | Social Cohesion

ECONOMY — 28 Indicators
Public Finances | Trade Diversification | Financial Markets | Business Environment | Labor Market | Innovation

URBAN ENVIRONMENT — 25 Indicators
Urban Design and Spatial Planning | Natural Heritage | Mobility Infrastructure | Connectivity Infrastructure | Sustainable Production and Consumption

Quantitative Assessment of 131 KPIs, normalizing and averaging scores

3 Strengthen Institutional Capacities to Respond, Recover, and Transform

Strategies, Policies, and Regulations | Governance and Partnerships | Capabilities and Processes | Financing | Systems and Data | Delivery of Services

Qualitative Assessment based on a detailed checklist

In this edition, the analysis was expanded to cover 50 cities, selected for their high levels of urbanization or population growth, contributions to their respective national economies, and geographic diversity—to ensure balanced global coverage (see Exhibit 2).

EXHIBIT 2: THE 2022 ANALYSIS COVERS 50 CITIES, INCLUDING 12 IN THE MENA REGION
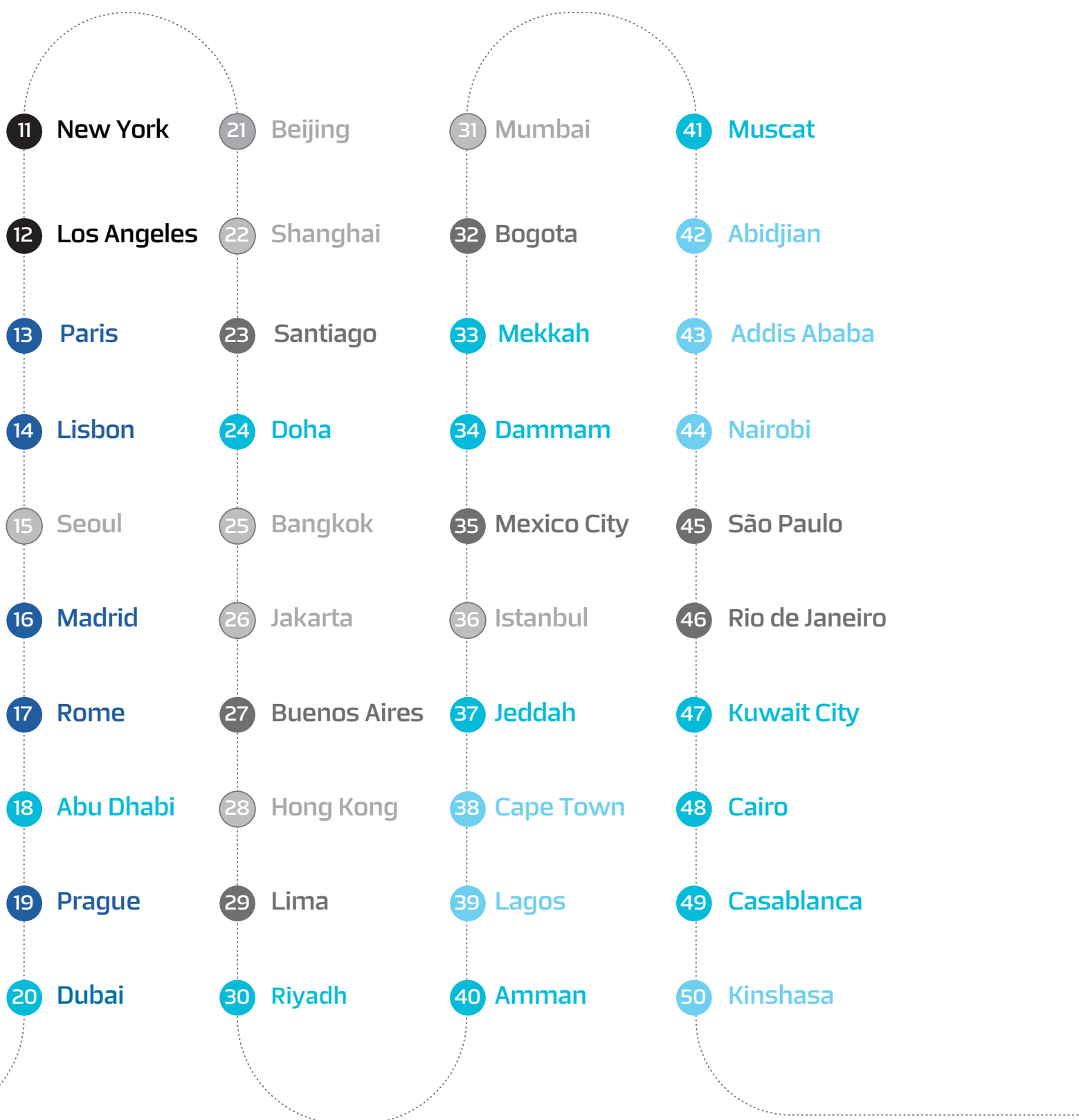
CITIES COVERED

US & CANADA		LATIN AMERICA		EUROPE		MENA		AFRICA		ASIA & OCEANIA	
Toronto	○	São Paulo	○	Zurich	○	Riyadh	○	Cape Town	○	Sydney	○
Montreal	●	Rio de Janeiro	●	London	○	Jeddah	○	Nairobi	○	Tokyo	○
Houston	○	Lima	●	Berlin	●	Casablanca	●	Addis Ababa	●	Bangkok	●
New York	●	Buenos Aires	●	Rome	●	Abu Dhabi	○	Lagos	●	Shanghai	●
Los Angeles	●	Bogota	●	Amsterdam	●	Dubai	○	Kinshasa	●	Hong Kong	●
		Mexico City	●	Madrid	●	Mekkah	●	Abidjan	●	Istanbul	●
		Santiago	●	Lisbon	●	Amman	○			Seoul	○
				Paris	●	Cairo	●			Singapore	○
				Prague	●	Dammam	●			Beijing	●
						Kuwait City	○			Jakarta	●
						Muscat	○			Mumbai	●
						Doha	●				

○ Cities included since 2020   ● Newly added cities in 2022

URBAN RESILIENCE—CITY RANKING

US & CANADA

EUROPE

MENA

ASIA & OCEANIA

AFRICA

LATIN AMERICA

1 Zurich

2 London

3 Toronto

4 Sydney

5 Singapore

6 Tokyo

7 Montreal

8 Amsterdam

9 Berlin

10 Houston

11 New York	**21** Beijing	**31** Mumbai	**41** Muscat
12 Los Angeles	**22** Shanghai	**32** Bogota	**42** Abidjian
13 Paris	**23** Santiago	**33** Mekkah	**43** Addis Ababa
14 Lisbon	**24** Doha	**34** Dammam	**44** Nairobi
15 Seoul	**25** Bangkok	**35** Mexico City	**45** São Paulo
16 Madrid	**26** Jakarta	**36** Istanbul	**46** Rio de Janeiro
17 Rome	**27** Buenos Aires	**37** Jeddah	**47** Kuwait City
18 Abu Dhabi	**28** Hong Kong	**38** Cape Town	**48** Cairo
19 Prague	**29** Lima	**39** Lagos	**49** Casablanca
20 Dubai	**30** Riyadh	**40** Amman	**50** Kinshasa

Europe | **US and Canada** | Asia and Oceania

Africa | Latin America | MENA

Core Insights

Key Findings from the Urban Resilience Index 2022

Revisiting the Cities in the 2020 Analysis

First, we revisited the 20 cities that we scored in 2020, in order to gauge their progress. Notably, all 20 had increased their urban resilience score, suggesting a heightened awareness of challenges and willingness to proactively address them post-pandemic (see Exhibit 3). Another possible explanation is that the pandemic freed up some government capacity to address resilience issues.

Of the original group of 20, Europe leads the way in overall performance, with cities witnessing a slight improvement in their scores. Zurich (which was first overall in both years) has been active in climate initiatives, food strategy, energy policy, heat mitigation, and green space expansion. London (which finished second) benefited from reforms such as increased investments and policy changes in response to Brexit and the pandemic.

However, the more important takeaway has to do with our three categories of resilience: resilient (with scores above 75, out of a possible total of 100), moderate (60-75), and vulnerable (below 60). We found that cities in the moderate and vulnerable categories registered the biggest gains in resilience—a 6% to 7% increase in their overall score, versus only 1.7% for resilient cities (see Exhibit 4).

EXHIBIT 3: ALL 20 CITIES IN THE ORIGINAL ANALYSIS INCREASED THEIR OVERALL RESILIENCE SCORE

Comparative analysis between regions (absolute change in score)

City	2020	Bar	Change
Zurich	84.2	83.8	0.4
London	82.3	80.7	1.6
Toronto	81.9	81.8	0.0
Sydney	81.8	78.9	2.8
Singapore	81.3	80.4	0.9
Tokyo	81.3	79.8	1.5
Houston	77.3	75.0	2.3
Seoul	74.6	73.8	0.8
Abu Dhabi	71.4	68.6	2.1
Dubai	70.5	67.5	3.0
Doha	67.3	63.0	4.3
Riyadh	61.4	51.4	9.9
Jeddah	58.5	50.3	8.2
Cape Town	58.1	54.3	3.7
Amman	56.5	54.8	1.8
Muscat	54.8	50.1	4.7
São Paulo	52.5	50.1	2.4
Nairobi	52.6	51.3	1.3
Kuwait City	50.2	46.4	3.8
Casablanca	50.0	49.1	0.9
Cairo	50.1	47.8	3.0

Legend: Europe, US and Canada, Asia and Oceania, Africa, Latin America, MENA

EXHIBIT 4: MODERATE AND VULNERABLE CITIES SHOWED THE BIGGEST IMPROVEMENTS

Exposure to Hazards: ALL 6.6%, Resilient 3.2%, Moderate 9.7%, Vulnerable 10.1%
Vulnerability: ALL 1.3%, Resilient -0.7%, Moderate 1.4%, Vulnerable 3.2%
Institutional Capacities: ALL 4.6%, Resilient 1.8%, Moderate 9.0%, Vulnerable 6.3%

Legend: ALL, Resilient (score>75), Moderate (score between 60 and 75), Vulnerable (score below 60)
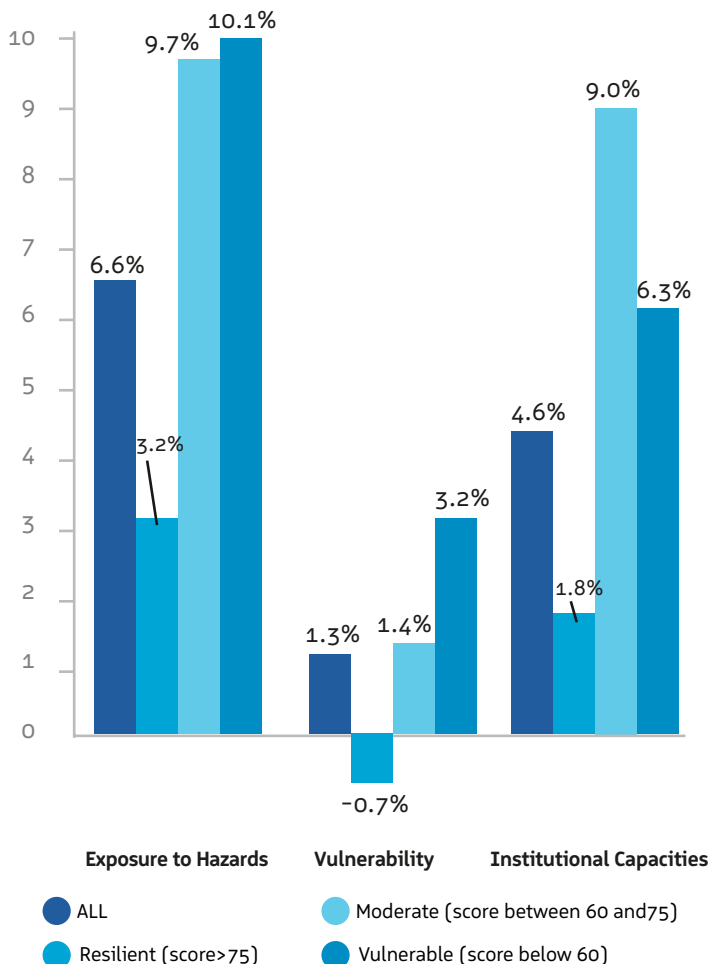
In particular, moderate and vulnerable cities saw some of their biggest gains through reducing their exposure to hazards: approximately 10% for both groups. Specific areas of improvement include:

- Air pollution is lower, although this could be a short-term improvement given limited transportation and travel emissions post-pandemic.

- Cyberattack exposure has decreased, as cities have focused strongly on enhancing their cybersecurity as part of the broader shift to digitization.

Another area of improvement for moderate and vulnerable cities is in their institutional capacities to recover from and transform from a shock, with gains of 9% for moderate cities and more than 6% for vulnerable cities. Although the rapid onset of the pandemic forced cities to be very reactive and tactical in their response, many launched more comprehensive institutional initiatives to boost their institutional recovery and transformation capacities—equipping them to respond more effectively to future disruptions.

At the regional level, MENA region cities showed the greatest improvement, increasing their overall urban resilience score by an average of 4.25 percentage points; i.e., 7.76%

between 2020 and 2022. For example, Dubai is implementing a large-scale strategy—its 2040 Urban Master Plan—aimed at improving urban areas, increasing green spaces, and diversifying its economy. The emirate has also boosted its recovery and transformative capacities, given its investments in innovation and advanced technologies and functions (e.g., foresight capability; i.e., the ability to be forward looking in assessing potential future disruptions and their implications for today's plans). And the UAE overall showed high resilience levels and good access to basic needs and medical supplies during the pandemic.

Doha also performed well, with a gain of 4.4 percentage points, or 6.9%, between 2020 and 2022. Those changes potentially reflect large-scale initiatives and sustainable urban planning undertaken ahead of the 2022 FIFA World Cup.

As for Riyadh and Jeddah, these cities achieved the highest increase in their urban resilience score. They have been undergoing major reforms to drive Saudi Arabia's Vision 2030, including modernizing infrastructure and social reforms. Riyadh has been focusing on economic diversification, massive infrastructure projects, and managing such risks as high temperatures and flash flooding. (More details are provided in the next section.)

Three Categories of Resilience

After revisiting the 20 cities that we scored in 2020, we analyzed the full sample of 50 cities across all three pillars of the framework—exposure to hazards, vulnerabilities, and institutional capacities to respond, recover, and transform (see Exhibit 5). Our findings highlight several characteristics of the three groups we identified.

EXHIBIT 5: RESILIENT CITIES STAND OUT ON THEIR INSTITUTIONAL CAPACITIES TO RESPOND, RECOVER, AND TRANSFORM IN THE FACE OF SHOCKS

Average score per pillar, per city cluster (score out of a possible 100)

	EXPOSURE TO HAZARDS	VULNERABILITIES	INSTITUTIONAL CAPACITIES
RESILIENT CITIES (Overall score above 75)	79	68	92
MODERATE CITIES (Overall score between 60 and 75)	68	59	74
VULNERABLE CITIES (Overall score below 60)	66	52	47

Resilient Cities

Broadly, while resilient cities have acceptable scores for hazard exposure and vulnerability, they all stand out with their strong institutional capacities to respond, recover, and transform in the face of shocks. In other words, resilience is largely within a city's control, provided it can create the right policies and response measures.

Resilient cities have areas of potential improvement, such as social protection and cohesion, public finances, innovation potential, and consumption levels. Moreover, they have the opportunity to further optimize their advanced capabilities across government operations—such as capabilities in behavioral economics and advanced analytics—and to personalize city services.

Moderate Cities

Cities with moderate resilience levels overall face some natural hazards, yet they have a strong resilience to human-caused hazards. This group tends to have educated and healthy populations; however, many lag behind on social protection and cohesion levels. Most cities' public finances are not solid, especially given that they lack strong innovation capabilities. They also have lower-than-average scores for maintaining their natural heritage, along with unsustainable levels of consumption and production. They have suboptimal dedicated funds for recovery measures and do not adopt participatory budgeting mechanisms. They also lack advanced capabilities to transform in the face of shocks.

Vulnerable Cities

Vulnerable cities score below those in other groups on every pillar. Although the difference is minimal in terms of exposure to hazards, these cities face sharper vulnerabilities, especially in terms of the economy and securing basic needs (emergency care, water security, and housing). In many cases, a suboptimal business environment, a weak labor market, and low innovation potential all limit governance capacity.

These cities lack the institutional depth to respond, recover, and transform in the face of shocks. They tend to focus more on immediate crisis management and response, rather than on building the long-term capabilities that will help them respond more effectively to disruptions.

The Regional View

In terms of regional performance for the full sample of 50 cities, the US and Canada lead the way, followed by Europe (see Exhibit 6). Notably, performance in the first two pillars (exposure to hazards and vulnerabilities) showed less variation than the third pillar of the framework. Therefore, cities that invest to build their institutional capacities to respond, recover, and transform in the face of shocks can make a meaningful difference in their overall resilience score—and that factor is within their direct control.

EXHIBIT 6: THE US AND CANADA FINISHED FIRST AMONG REGIONS, FOLLOWED BY EUROPE...

...mainly through solid institutional capacities that allow them to respond, recover, and transform in the face of shocks.

Region and Overall Score		Exposure to Hazards	Vulnerabilities	Institutional Capacities
US AND CANADA	78.6	73	69	93
EUROPE	77.0	79	67	85
ASIA AND OCEANIA	70.1	68	60	83
LATIN AMERICA	59.6	72	55	52
MENA	59.1	67	58	53
AFRICA	53.8	63	46	53
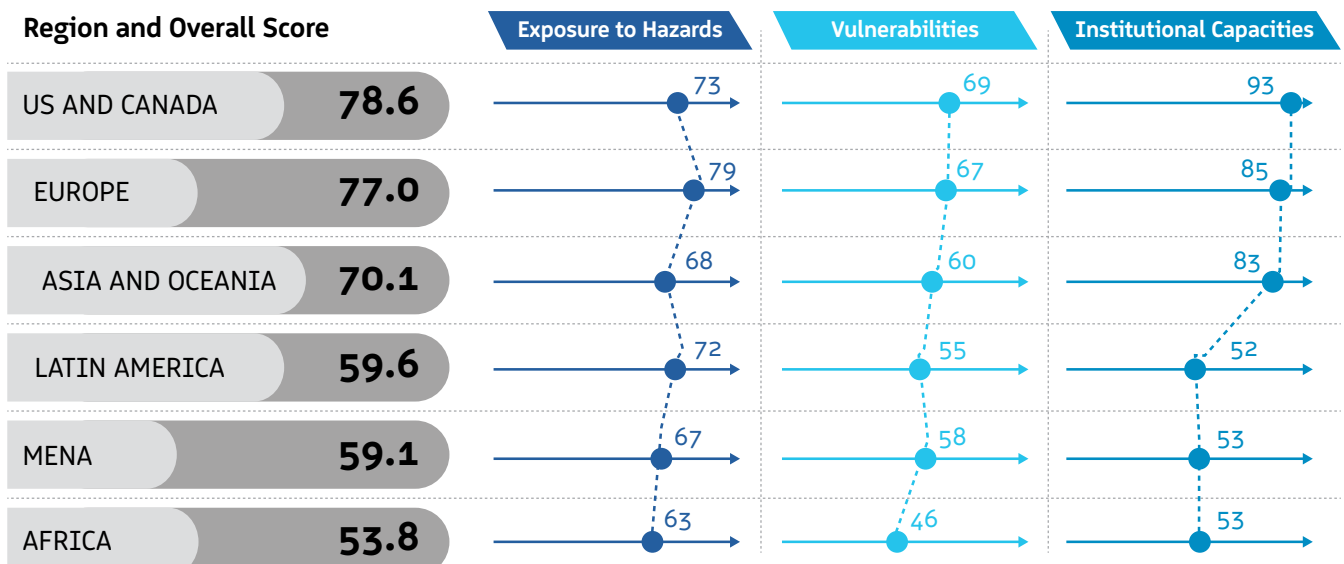
In this section, we highlight other key elements within specific regions.

US and Canada

All cities in the US and Canada in the analysis stand out for their institutional capacities to respond, recover, and transform in the face of shocks.

Europe

In Europe, there is a consistent geographic story regarding urban resilience. Southern cities on the continent tend to have suboptimal social protection and social cohesion, along with unstable public finances. The entire region has strong institutional capacities to respond and recover; however, only advanced economies within Europe have solid transformative capacities as well.

Asia and Oceania

Cities across Asia mainly face risks of landslides, droughts, and (in some areas) earthquakes. Geopolitical tensions are high, for example, in cities in China and in Istanbul. Social protection and housing are vulnerabilities across most cities, with the exception of Sydney and Singapore. The rest of the vulnerabilities vary by subregion. In general, cities have solid response and recovery capacities, yet lag on their transformative capacities.

Latin America

Latin America is at risk of landslides and, to a lesser degree, earthquakes. Some cities, such as Mexico City, have high homicide rates. Throughout the region, the levels of social protection are very low. Accessibility to housing and safety and security are also areas for improvement. Latin American cities face extensive challenges when it comes to the economic dimensions of our framework—particularly innovation levels and connectivity, where poor performance hinders a city's ability to recover from a shock. More generally, the region has very low recovery and transformative capacities, which prevents its cities from addressing shocks efficiently.

MENA Region

The MENA region faces multiple natural hazards, such as droughts and landslides, epidemics, and insect infestation. It is resilient to human-caused hazards. Social protection and cohesion are suboptimal, driven by migration and refugee levels. Some cities also face risks in terms of securing emergency care and ensuring a stable supply of food and water. Innovation levels, connectivity, and urban planning are also suboptimal, except in some Gulf Cooperation Council (GCC) countries. Unsustainable consumption and production levels present additional challenges. The GCC leads the way with strong response and recovery capacities, yet all cities lag in terms of transforming after a shock.

Africa

Africa faces high risks of hazards, especially those that are human-caused. Geopolitical tensions and homicide are key risks for some African cities. They face high vulnerabilities across all sub-pillars, mainly those related to social protection, food security, housing access, the resilience of financial markets, innovation levels, and connectivity. In parallel, the region does not have sufficient institutional capacities to strengthen its position, especially when it comes to recovery and transformative capacities.

Unlocking Urban Secrets

A Deep Dive into Major Transformations

Through our research, we identified several case studies of urban transformations aimed at making cities more resilient (see Exhibit 7).

EXHIBIT 7: SPECIFIC CITIES HAVE TAKEN NOTEWORTHY STEPS TO BECOME MORE RESILIENT

NEW YORK
Community Resilience Map

PARIS
The 15-Minute City

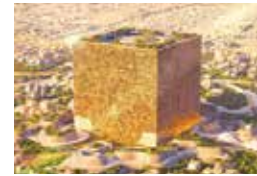
CAPE TOWN
A Holistic Approach

SÃO PAULO
A Safe Life

BEIJING
Innovation Hub

DUBAI
National Housing

RIYADH
Economic Diversification

New York City Creates a Community Resilience Map

New York City faces a range of climate threats, from coastal flooding to urban heat. In a collaboration between public and private entities and community-led organizations, New York developed an interactive map to showcase the multiple planning and visioning initiatives in place to combat these threats.

The first-of-its-kind tool highlights nearly 100 community-focused plans, led by around 40 community-based organizations and groups made up of residents, community organizers, and partners. The map shows real-time threats, along with potential solutions such as green infrastructure or ecology restoration projects.

For example, one plan—the Northern Manhattan Climate Action Plan—has recommendations for policy changes and informal local actions, all derived from multiple public workshops. Similarly, the Gowanus Lowlands master plan includes the development of a network of parks and public spaces to reduce urban heat and increase community activity.

Paris Designs a 15-Minute City

The pandemic has completely transformed citizens' lifestyles and created opportunities for green urban planning to promote development and make economies more resilient. In 2020, seizing the moment provided by the first wave of COVID-19 lockdowns, Paris developed a 15-minute city program to improve livability through improved air quality and strengthened neighborhoods. The premise of a 15-minute city is that residents anywhere in the city should be able to access most of what they need for daily life, whether it's related to work, leisure, education, healthcare, or shopping, in a 15-minute trip on foot, by bicycle, or via mass transit.

To that end, Paris rethought its approach to recreational space. It now keeps schoolyards and parks open after working hours to make them more available and accessible. Some educational establishments have been transformed into community hubs, creating healthier neighborhoods.

Cars have been banned from some streets, making them more pedestrian-friendly (and enabling children to travel to school safely). The city built more than 1,000 kilometers of cycling routes, including separate lanes on certain roads. And citizens now have more say in the budgeting process, with US$82 million of city funding that residents can allocate to crowdsourced projects by voting.

São Paulo Rethinks Traffic Flows to Boost Safety

São Paulo recently set an ambitious goal to reduce its traffic fatality rate by more than half, to just three deaths per 100,000 people by 2029. As part of this plan—known as Vida Segura (or "Safe Life")—the city focused less on the enforcement of traffic rules and more on smart design principles and other measures to make all parts of the mobility system safer, while recognizing that human error is unavoidable. The program had several initiatives:

Use Open Data to Identify Solutions
The city increased its data collection and processing, to enable an evidence-based approach to identifying problems and implementing solutions.
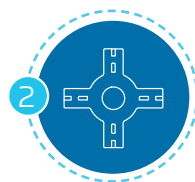
Redesign Streets for the Most Vulnerable
São Paulo improved street designs to make traffic flows safer. It reviewed the classification and maximum speed of roads to adapt to the needs of all road users, not just cars. It implemented low-speed zones on some streets, designed safe routes to school, expanded its cycling network, and also increased monitoring and traffic enforcement.

Engage the Community to Build Support
The city developed a consistent, large-scale communication effort to educate the public and generate support among citizens.

Cape Town Applies a Holistic Strategy for Resilience

Cape Town regularly confronts different types of hazards, including droughts, wildfires, and social disruptions. In response, the city has adopted a robust and holistic strategy for increasing its resilience against social, economic, and climatic shocks and stresses. The strategy includes five elements, with underlying goals and actions for each:
1) Compassionate, holistically healthy city
2) Connected, climate-adaptive city
3) Collaborative, forward-looking city
4) Capable, job-creating city
5) Collectively, shock-ready city.

## Dubai Designs a Forward-Looking Housing Policy

In 2021, Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and ruler of Dubai, launched the Dubai 2040 Urban Master Plan, with multiple plans and strategies to prioritize the well-being, happiness, prosperity, and stability of the emirate and its people. Its National Housing Policy, for example, aims to provide integrated and diverse housing options to meet citizens' needs today and more than 20 years in the future.

One part of that plan is creating new housing options with the highest planning standards, including green areas, commercial centers, and recreational spaces, to cater to citizens' needs for the next 20 years. It also reserves strategic land banks to build housing in 2040 and beyond. For some of that housing, the government is revitalizing business districts, creating new options from older infrastructure.

The plan's financial aspects make housing more accessible by raising the limit for interest-free housing loans to AED 1 million (US$274,884) for people in specific categories. It includes a digital platform that will allow Emiratis to easily exchange grants, land plots, and housing units among themselves.

Riyadh Diversifies Its Economy

Riyadh is playing a major role in Saudi Arabia's path toward economic diversification—an important step in building local resilience against external shocks that could affect the oil and gas industry, on which the country currently relies. Saudi Arabia's vision of transforming Riyadh into one of the world's biggest city economies is being implemented through multiple initiatives:
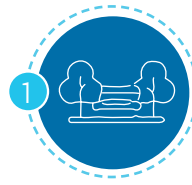
1 King Salman Park Project
Adopting aspects of circular design for greater sustainability, King Salman Park is set to become the world's largest urban park.

2 Green Riyadh
This project aims to plant 7.5 million trees throughout the city by 2030

3 Riyadh Metro Project
This new rapid transit system will help ease traffic and facilitate urban mobility through 85 stations across six lines.

4 Urban Development
Current plans include the construction of over 241,000 homes by 2030, in addition to 3.6 million square meters of office space.

Beijing Builds an Innovation Hub

Beijing is constructing an international innovation hub for science and technology, scheduled to be completed in 2025. The hub is part of a broader technology strategy intended to help Beijing become self-reliant in terms of science and technology, support high-quality economic development, and transform the entire city into a global science center. Through the hub, Beijing will further enhance its ability to coordinate and supply computing resources, organize commercial computing power to meet urgent needs, promote construction of new computing power infrastructure, establish a unified multi-cloud computing power scheduling platform, and improve the integrated scheduling capability of computing power in the Beijing-Tianjin-Hebei region.

# The Interconnectedness
of Urban Resilience

A key aspect of our findings is how the different dimensions of the Urban Resilience Index are interrelated. Enhancing even one dimension will have positive implications that cascade into other aspects of city life.

For example, a city that integrates more green spaces into urban planning will reduce pollution levels and decrease the impact of climate change. More green spaces and parks will also make the city more walkable, reducing citizens' reliance on cars and daily commuting, lowering the rate of traffic fatalities. More walking means a healthier population. And more parks where people can gather will increase community engagement and the social cohesion levels of the city, consequently increasing the level of safety, reducing stress and anxiety in the population (see Exhibit 8).

EXHIBIT 8: THE DIMENSIONS OF URBAN RESILIENCE ARE INTERRELATED AND SYSTEMIC

NON-EXHAUSTIVE | ILLUSTRATIVE
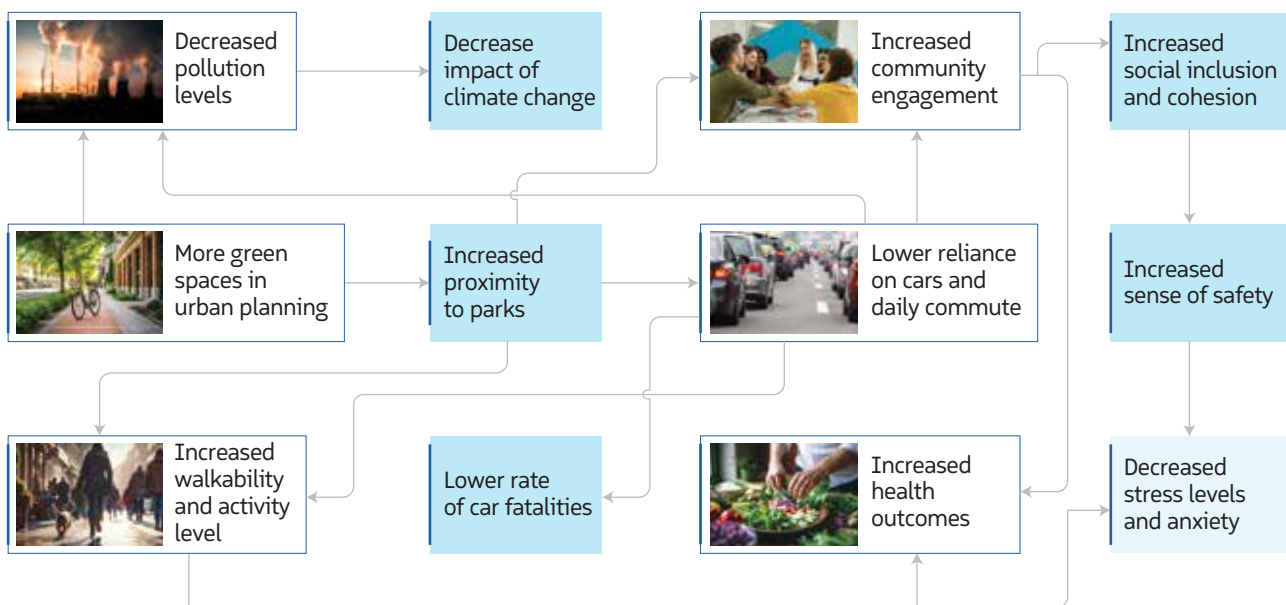
To gauge the potential for resilience initiatives to yield these kinds of systemic benefits, we measured the correlation of urban resilience with social, economic, and digital development metrics. Specifically, we looked at seven indices: Global innovation index, GDP per capita, Digitization Index, IMD Smart City Index, Human Development Index (UNDP), Global Competitiveness Index, and Network Readiness Index. (For a description of each index, see the Appendix.)

Critically, all seven show a positive correlation with the Urban Resilience Index, with high coefficients ranging from 0.7229 (for GPD per capita) to 0.8823 (for the Digitization Index).

That said, not all pillars of resilience are equally important in driving growth within the indices under consideration. Of the three in our framework, the vulnerability pillar has the highest contribution to and correlation with the seven indices considered—particularly the Digitization, Human Development, Global Competitiveness, and Global Innovation indices.

This suggests clear priorities for cities seeking to improve their urban resilience: they should focus on addressing the attributes of vulnerability, as they will yield the highest returns. Drilling down one more level into the data, our analysis shows that economic status is the most important contributor to urban resilience and other indices, entailing solid public finances, high economic diversification, developed financial markets, a healthy business environment, skilled labor availability, and high innovative clusters.

In fact, all countries in the moderate or vulnerable groups (those with overall urban resilience scores below 75) have low innovation scores (below 50). In contrast, most countries in the resilient group have above-average scores on innovation. This suggests an association between innovation and resilience score. Similarly, in terms of institutional capacities, the transformation sub-pillar is the one that yields the highest returns; keep in mind that this metric gauges how well a city integrates emerging capabilities into public-sector operations.

For that reason, we believe that innovation should be among the top priorities for all cities. It is the key to resilience. The objective is not merely to create something new; it is to constantly adapt and evolve in the face of change, turning challenges into opportunities and being prepared to pivot whenever necessary. This agility is what makes organizations and individuals not just survive but thrive, even in the most uncertain times.

Conclusion

As the frequency, severity, and scope of disruptions grow, cities need to take smart, disciplined steps to become more resilient. Our analysis shows that most global cities have improved their overall resilience in the past several years, and MENA region cities have made some of the largest gains. Although such progress is noteworthy, it is not enough. Cities need to redouble their efforts to assess their exposure to natural and human-caused hazards and identify their vulnerabilities across a range of dimensions. By understanding their exposure and making targeted investments, MENA region cities will make themselves more resilient, enabling them to better protect their citizens and thrive in an increasingly complex world.

Appendix

Strategy& Developed a City-Level Comprehensive Resilience Framework to Assess Preparedness in the Event of Potential Future Shocks

The framework was translated into a composite index, divided into two sections:

01 An assessment of cities' exposure to hazards and vulnerabilities, based on 131 key performance indicators (KPIs) that cover 36 dimensions

02 A qualitative assessment of the readiness of the cities' institutional capacities, based on a detailed checklist

For a detailed discussion of the KPIs and the weights assigned to them, please see the report from our **2020 analysis.**

The following were our main sources of information: the World Bank, World Development Indicators, Worldwide Governance Indicators, and other databases; UN Food and Agriculture Organization; Statista; Global Health Security Index; Global Food Security Index; SDG Index; United Nations Educational Scientific and Cultural Organization; World Health Organization; World Economic Forum, Global Competitiveness Index; Our World in Data; United Nations Development Programme, Human Development Report; United Nations Sustainable Development Solutions Network, The World Happiness Report; Gallup; United Nations Conference on Trade and Development; European Commission, Emissions Database for Global Atmospheric Research; Global Residence index; International Labour Organization, ILOSTAT; World Intellectual Property Organization; Arcadis; Global Footprint Network; Institute for Economics & Peace; Weather Base; World Resources Institute; national statistics; and Strategy& analysis.

Descriptions of Key Indices

Index	Source	Purpose
1 Global Innovation Index	World Intellectual Property Organization	Ranks countries' innovation performance across criteria including research and development spending, patent applications, venture capital investments, university–industry collaboration, and number of scientific works published
2 GDP per Capita	The World Bank	Tracks the relationship between overall economic output and the number of inhabitants of a given country
3 Digitization Index	Telecom Advisory Services	Provides a comprehensive view of a city's digital ecosystem, including its infrastructure, use of technologies, and public policies
4 IMD Smart City Index	IMD World Competitiveness Center	Measures the economic and technological aspects of smart cities, along with "humane dimensions" such as quality of life, environment, and inclusiveness
5 Human Development Index	United Nations Development Programme	Assesses the extent to which citizens can lead a long and healthy life; be educated; and enjoy a decent standard of living, political freedom, other guaranteed human rights, and various ingredients of self-respect
6 Global Competitiveness Index	World Economic Forum	Measures a country's ability to provide the conditions for productivity growth and improved quality of life for its citizens.
7 Network Readiness Index	Portulans Institute	Measures how well a country can exploit opportunities from information and communications technology, considering technology, people, governance, and impact

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