

Smart Cities – Beyond COVID-19

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Future Cities around the world share multiple features that allow them to excel

Sustainable



Demonstrates balanced accomplishment of social & economic development, environmental management & effective urban governance.

Citizen Centric



Focus on the physical, mental & social well-being of individuals & society, encompassing many factors (life satisfaction, physical health, psychological state, education, wealth, religious beliefs, local services & infrastructure, among others).

Economically Vibrant



Attracts investments, facilitates business, nurtures indispensable assets (its well-educated people), improves productivity, promotes growth and expands opportunities for all stakeholders.

Accessible



All sections of society in an accessible city can live independently and participate fully in all aspects of life. This city ensures that people with special abilities and the vulnerable section of society have equal access to all services provided.

Resilient



Enhances the capacity of individuals, communities, institutions, businesses and systems to survive and adapt while they experience chronic stress and acute shock across health, the economy, infrastructure and environment.

Well Governed



Optimally utilizes resources to effectively realize the short- and long term agenda of its development, while achieving greater transparency in public decision-making and establishing institutional accountability.

Innovative



To consume its available resources in the best way possible, such a city enables all stakeholders to use data collected by digital infrastructure to spot patterns, identify problems and make real-time decisions

Planned



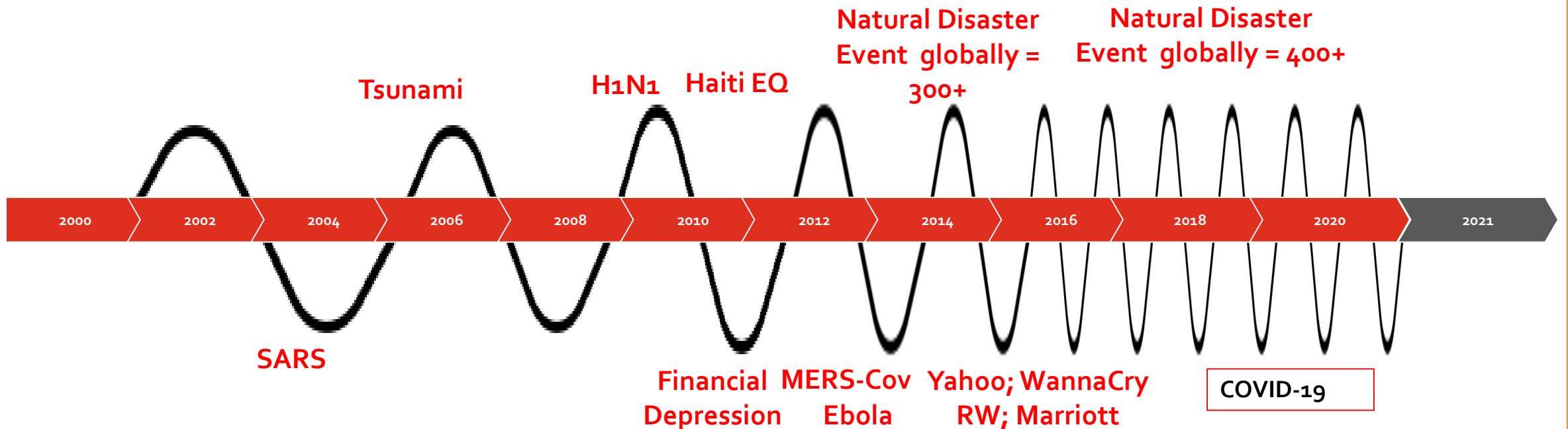
Strengthens its local economy by creating a master plan that integrates all urban domains, and offers enough flexibility to make amendments to the plan when external conditions change or when innovative solutions emerge.

Source: World Economic Forum, Shaping the Future of Urban Development & Services Initiative & PwC Research



21st century threats are happening more frequently and having greater socio-economic impact on cities

Frequency of Global Threats

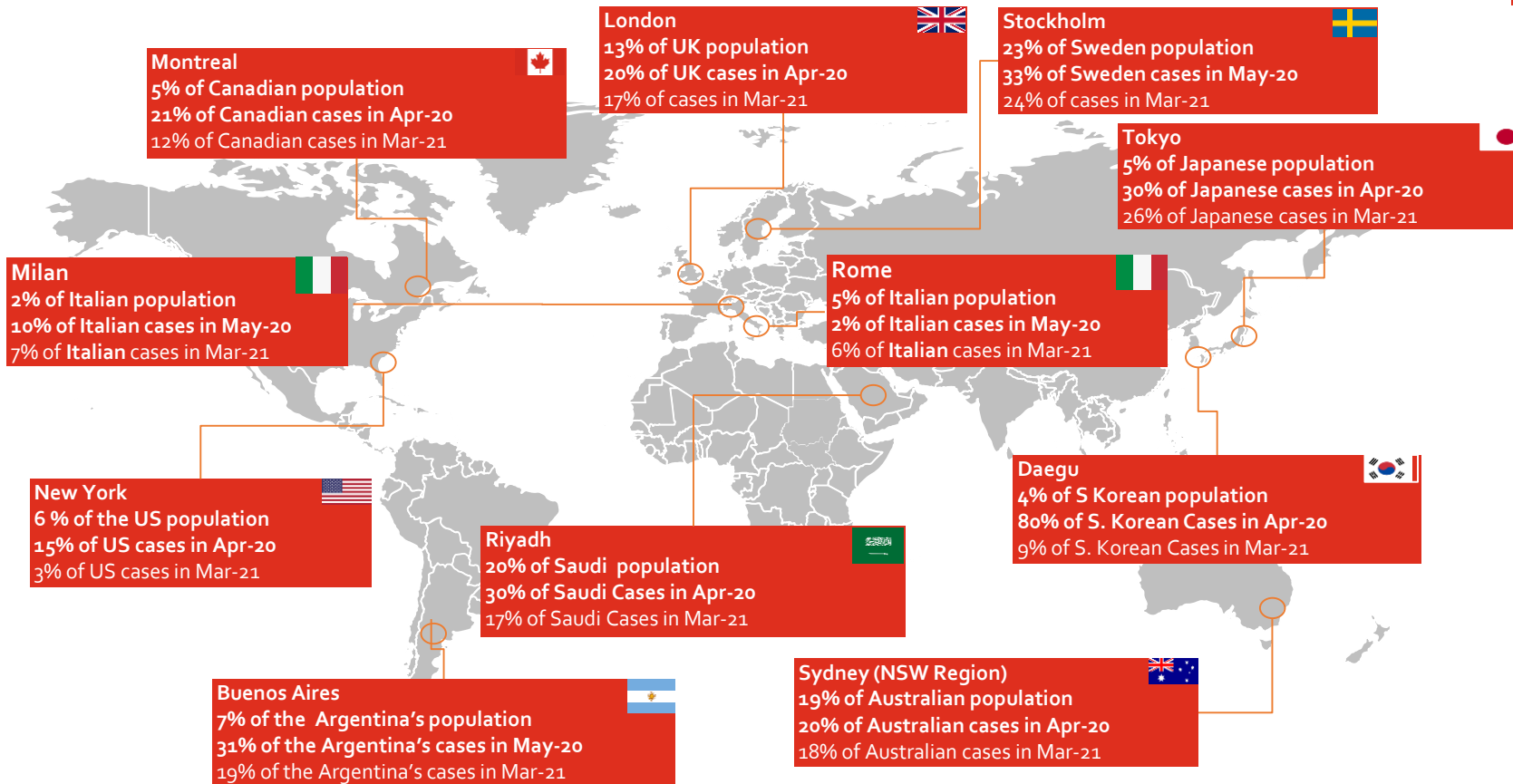


Source: Media reports & PwC Research



Cities are at the forefront of the Covid-19 outbreak and many have encountered greater impact at onset of the pandemic

Ratio between city population and cumulative COVID -19 cases



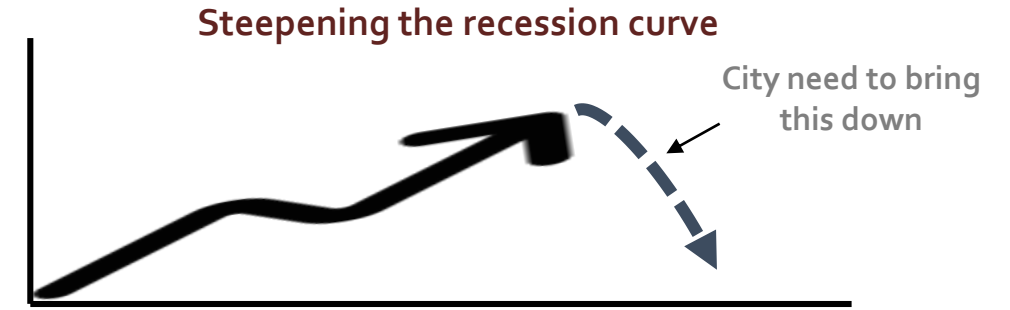
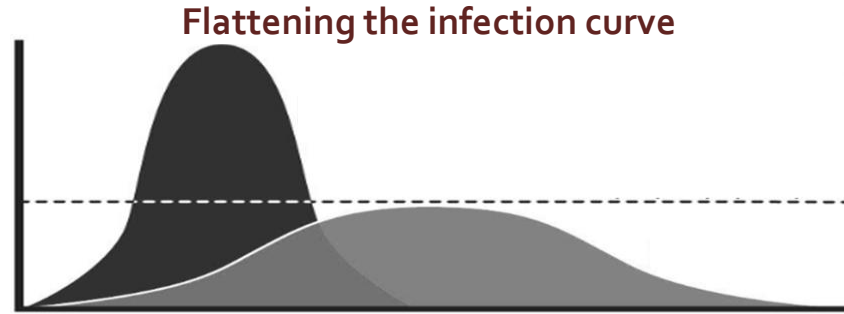
Reasons cities were the most impacted

- Rapid urbanization surges have resulted in cities becoming **densely packed** and being spatially close makes cities most vulnerable
- High concentration of economic activity in cities (**70% of world GDP** in cities, but less than **2% of land mass**)
- Heavy reliance and ridership on **public transportation** for commuting
- Several cities act as **national/regional/global economic and travel hubs**






Source: City Websites; Media Reports & PwC Research




Cities are experiencing “twin challenges” - the more is done to flatten the infection curve, the more steeply the recession curve is rising



Measures taken

-  Lockdown & Confinement
-  Travel & Tourism Restrictions
-  Utility subsidies
-  Cutting Interest rates
-  Economic Stimulus packages

Challenges

-  **Urban Society**
 - Food security
 - Securing critical resources
 - Deepening inequality
 - Managing spread in vulnerable communities
-  **Urban Economy**
 - Reduced revenues & municipal budget shrinkages
 - Unemployment
 - Supply chain disruptions
 - Increased operational expenses
 - Trade off between business continuity and control measures

Impacted Sector

- Real estate ↓
- Transportation ↓
- Tourism & Hospitality ↓
- Health Care ↓
- Telecom, Media & Technology ↑



Though Covid-19 has tested the capacity of cities in unprecedented ways, it also provides an opportunity to “build back better” for the new normal

Key Questions

How does government ensure disease containment while bringing the economy on track?

How does government ensure introducing multipurpose design in future projects?




How does government ensure investments go to infrastructure projects that are sustainable, technologically advanced and resilient?

Example Solutions

Emerging technology

-  *Advanced Data & Analytics as strategic asset*
-  *Crisis Management Control Tower & Participatory disaster response platforms*
-  *Data Economy*
-  *Digital education and workplaces*
-  *Contactless technologies like facial recognition in transportation, ATM's etc*



Hybrid Projects

-  *Repurposing large redundant public facilities*
-  *Repurposing gig economy workforce to maintain essential supply chain*
-  *Circular economy projects (District heating; energy efficiency; waste to energy)*

Capital Infrastructure

-  *5G infrastructure and network development*
-  *Bicycle Tracks & pedestrian infrastructure*
-  *EVs in public transportation and driverless freight*
-  *Affordable housing and integrating informal settlements*
-  *Clean, energy-efficient buildings*

Operational Infrastructure

-  *Digital Twins for city infrastructure*
-  *Public Health & Education capacity augmentation*



The pandemic has further aggravated the already existing infrastructure investment and funding Gaps

As per the *Global Infrastructure Outlook*

Infrastructure Investment Gap

The world is on-trend to face a **\$15 trillion gap** between the infrastructure investment needed and the amount provided by 2040

As per the *World Bank Group report*

Investing in Urban Resilience

Over the next 15 years, at least **\$400 billion** will be needed each year to make **city infrastructure** low-emissions and more **resilient** to the wide range of shocks and stresses that cities may encounter

Source: *Global Infrastructure Outlook*; World Bank



The Urban 20, the cities group under the G20, asked the key question: How were cities impacted by COVID-19?



Amsterdam



Berlin



Buenos Aires



Dubai



Durban



Helsinki



Houston



Izmir



Jakarta



Los Angeles



Lisbon



Madrid



Mexico City



Montreal



Osaka



Paris



Rome



Rio De Janeiro



Riyadh



Seoul



Tshwane

In June 2020, the U20 conducted a cities survey to understand the impact, challenges and measures taken by cities to overcome

the pandemic. **21** cities across the globe participated, representing a cumulative population size

of more than **75** million inhabitants

Source: Urban 20 "City Survey"



Data from the U20 member cities impact survey and other studies show that cities lack the ability to respond to shocks and building resilience for the future in cities



No budget and access to national government stimulus packages for Emergency Situations

- Limited local government revenues and intergovernmental grants for emergency situations
- Minimal insurance coverage to safeguard against emergency situations and external shocks
- Inadequate access to national government stimulus packages for response and recovery
- Complex and lengthy process for access to funds



Inaccessibility or Difficulty to access international finance for cities

- Dependency on sovereign national guarantees
- Low municipal credit-worthiness
- Lack of Institutional capacity (Project preparation capacity and management)



Limited engagement with the Private Sector

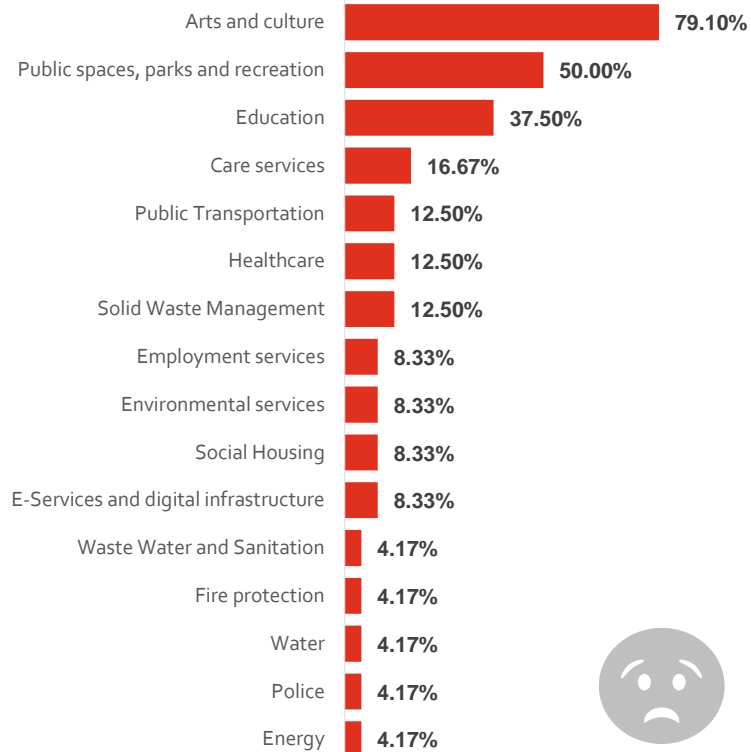
- Inadequate regulatory and legal framework for public private partnerships
- Insufficient profit margin
- Limited flexibility in procurement to support innovation



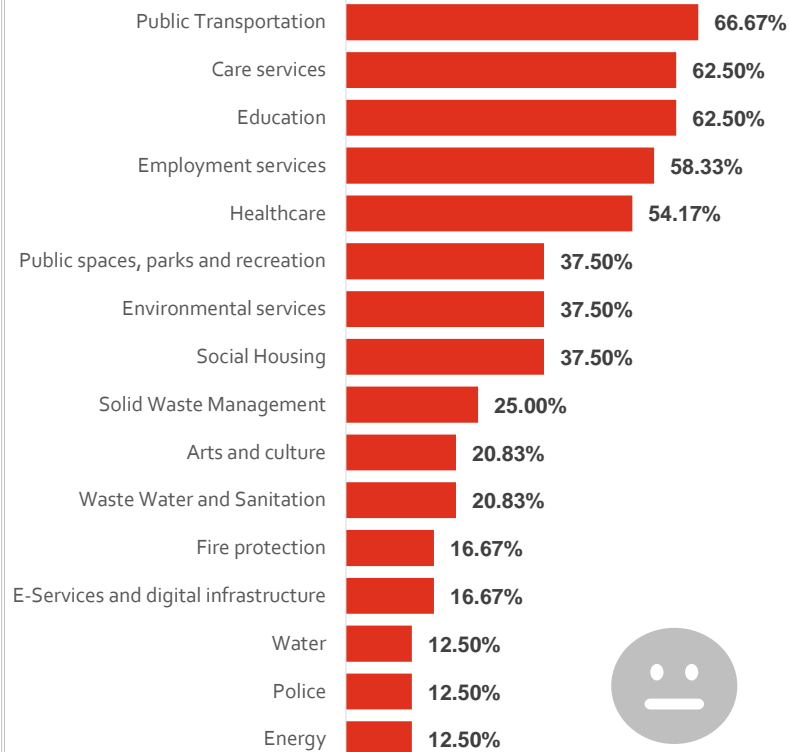
Survey Findings - Urban services affected by COVID-19 impacts and response measures

Urban services affected by COVID-19 impacts and response measures

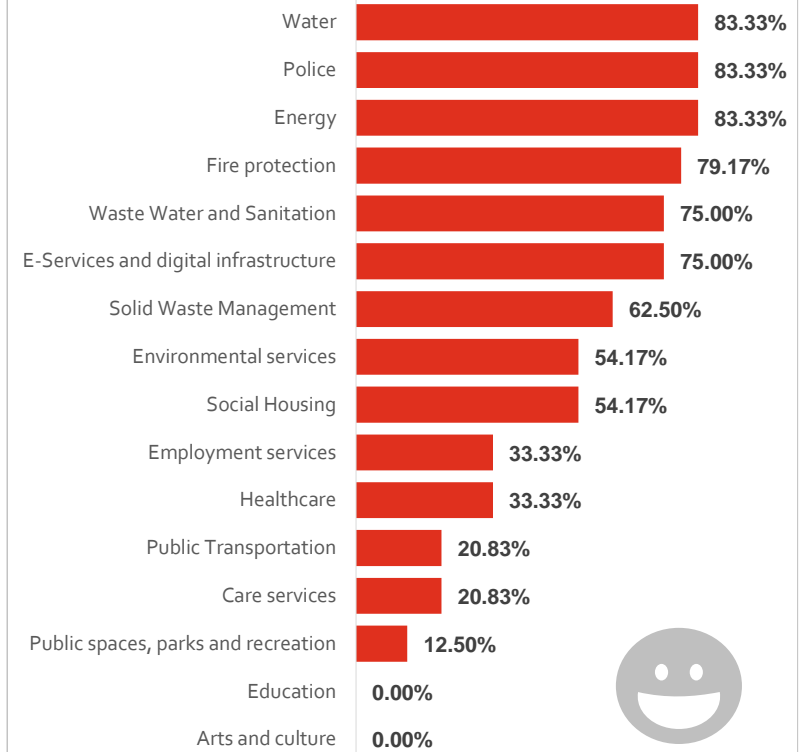
Disrupted: Service was entirely unavailable for long periods of time



Affected: Service disruptions occurred or service quality decreased



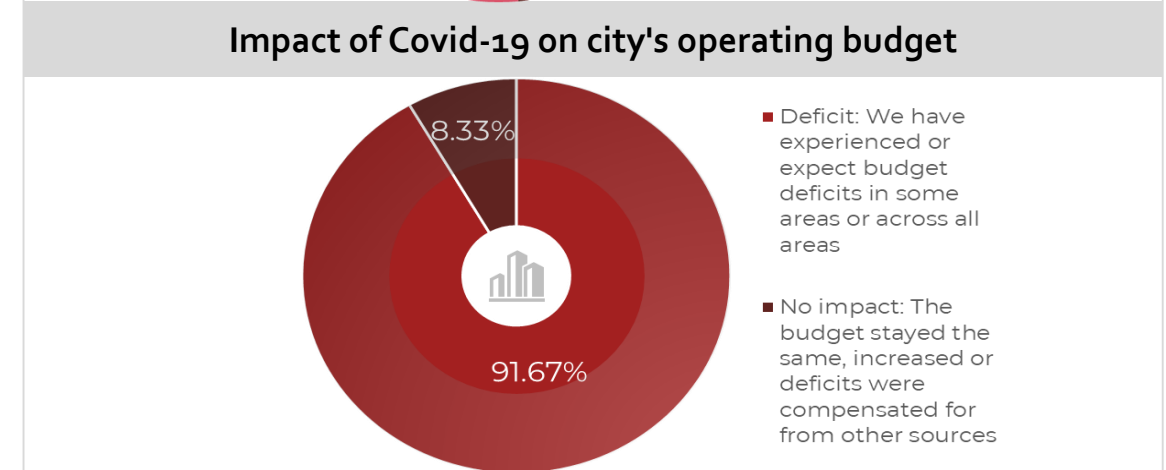
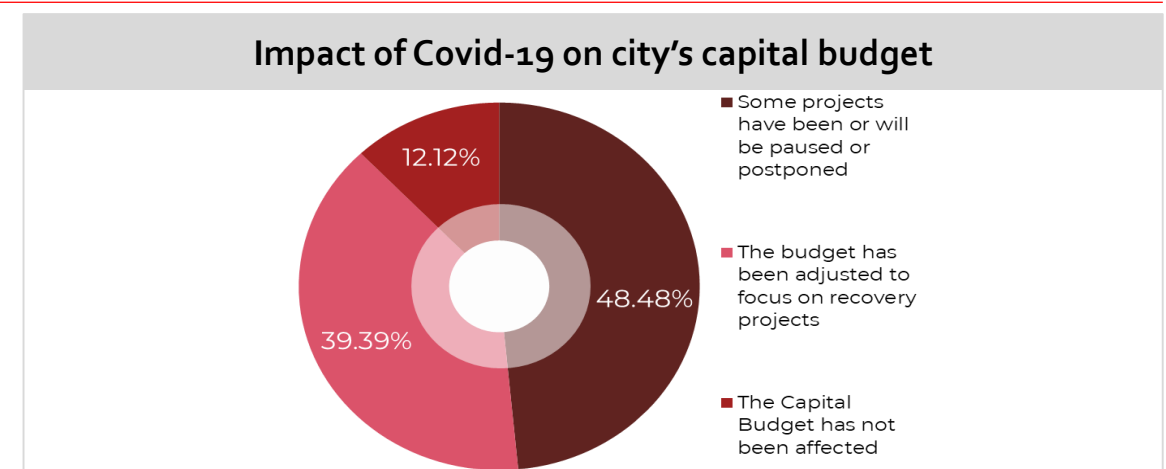
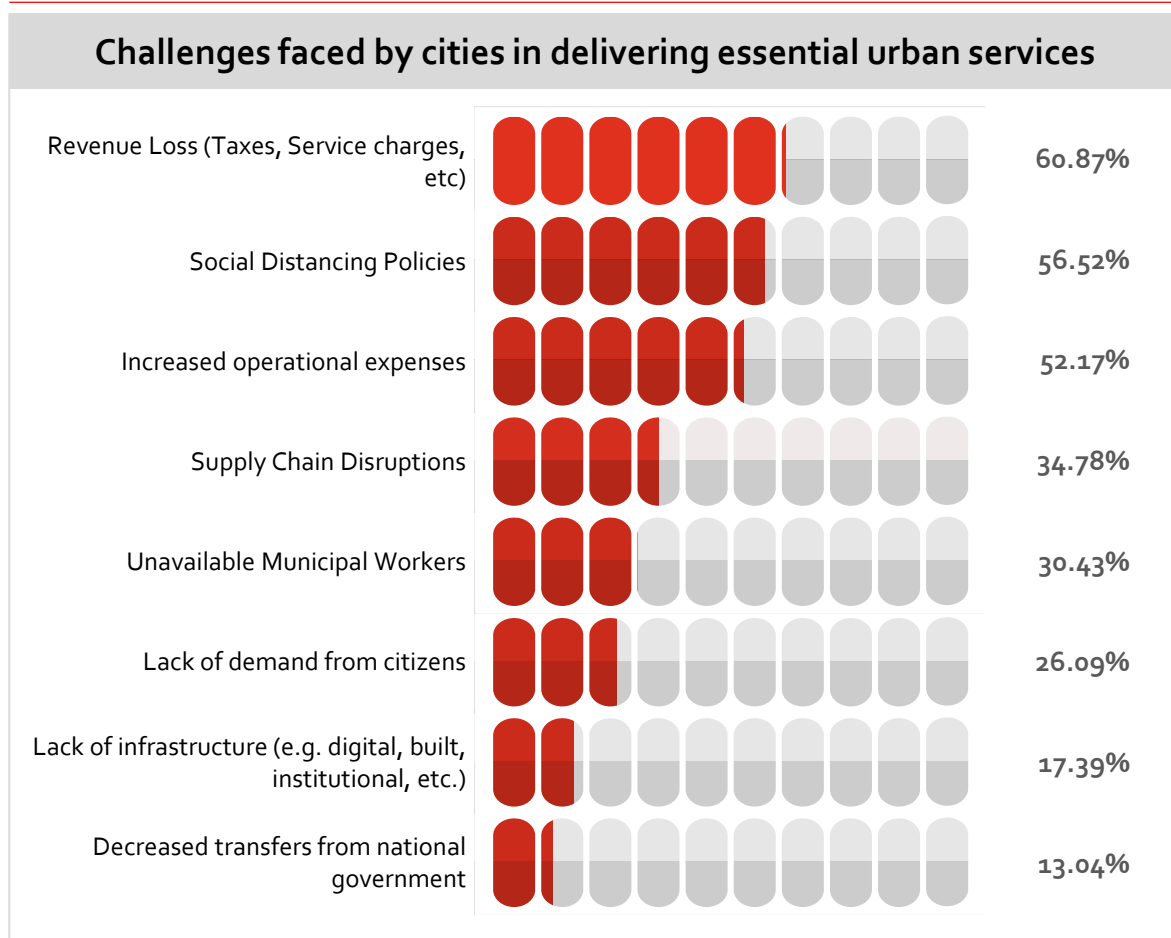
Unaffected: Service was delivered as usual throughout the outbreak



Source: Urban 20 "City Survey"



Survey Findings - Cities encountered revenue losses and increased expenses due to confinement measures that led to deficits in city's capital and operating budgets

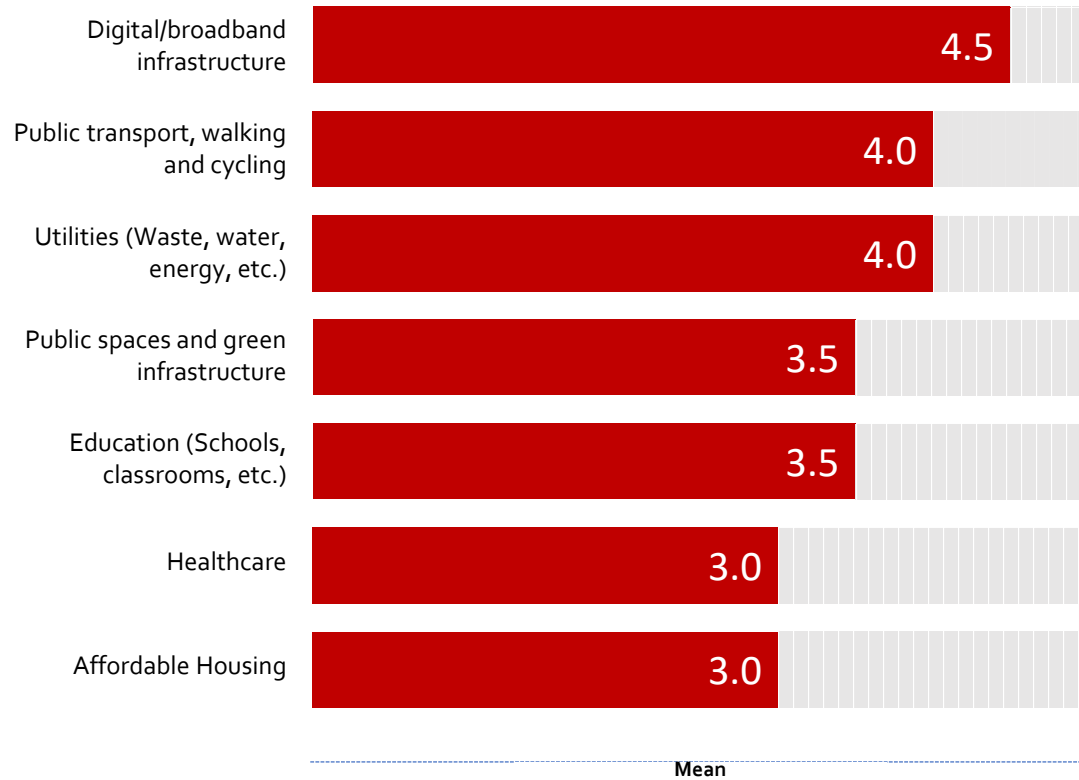


Source: Urban 20 "City Survey"

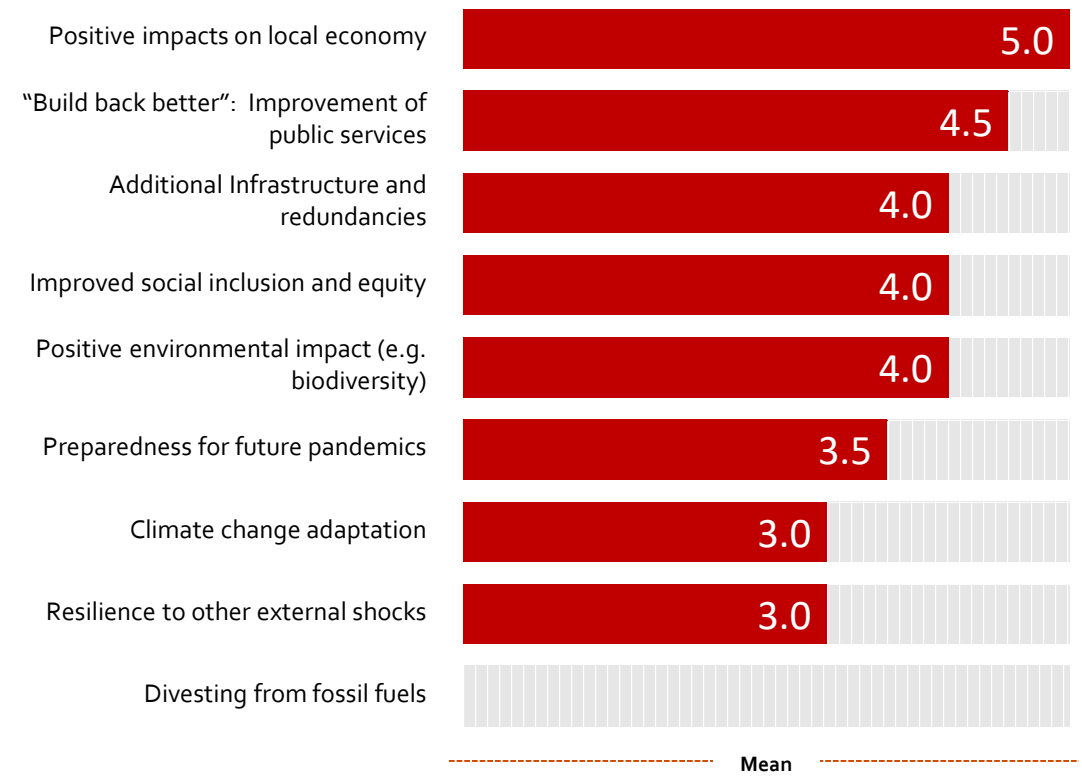


Survey Findings - Recovery investments must strengthen future resilience and needs to be a shared responsibility of government, private sector and citizens communities

Types of infrastructure projects and investments cities will focus to recover from COVID-19 and prepare for future shocks



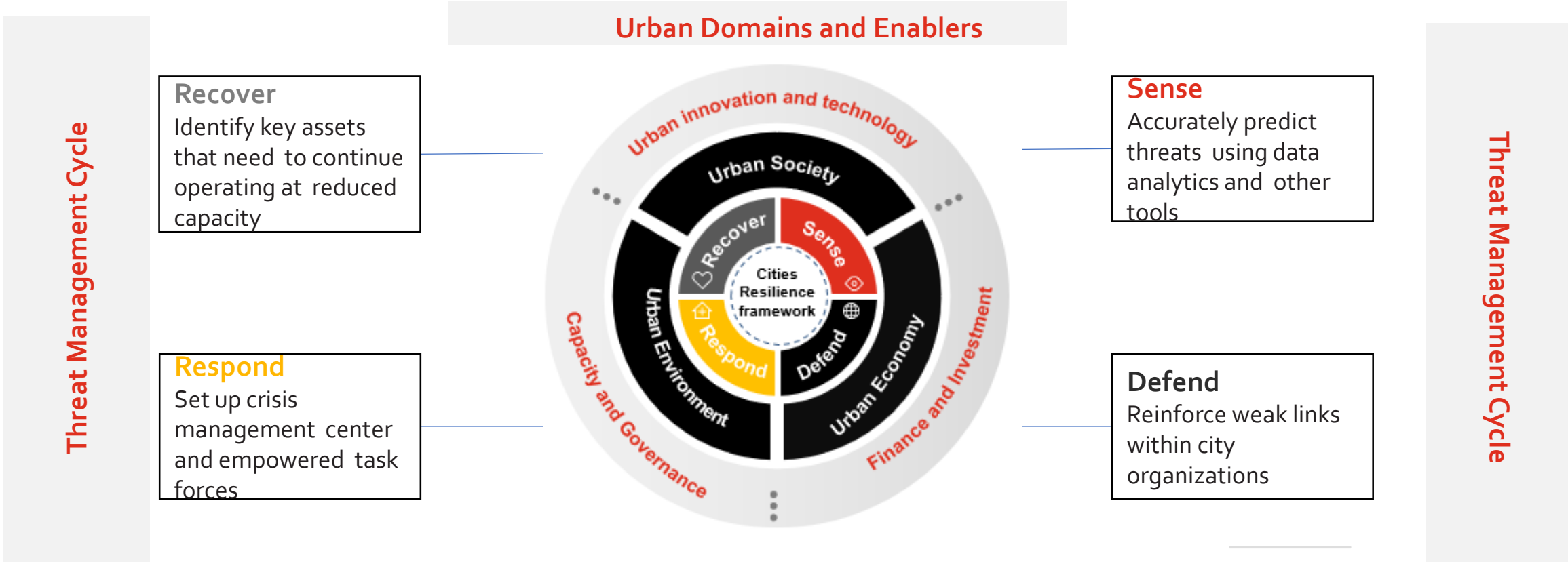
Criteria being prioritized by cities for the recovery projects & investments to prepare for future shocks








Source: Urban 20 "City Survey"



PwC has developed a city resilience framework that enables cities to manage immediate threats and build long-term resilience for cities



Key stakeholders

- 
Citizens
- 
Government
- 
Private Sector
- 
Non-Profit organizations
- 
Academia

The pandemic's unprecedented impact led to unique resilience measures across cities globally (1/2)

"Helsinki's mission is to be the most functional city in the world. The strategy is based on a holistic leadership model, where each and every aspect of the city management and functions is built better by following the idea of functionality"

- Jan Vapaavuori

Mayor, City of Helsinki

Boston

- Provides a good example of how engagement and collaboration between all stakeholders especially the private sector and nonprofits help mitigate and ultimately manage emergencies.
- Bloomberg Harvard City Leadership Initiative has run classes for city officials on subjects such as emergency preparedness and response.
- In the private sector, Uber is among the companies that have delivered free meals to healthcare workers.
- NGO Feeding America has supported the management of Boston's food supply chain during the crisis.

Helsinki

- Helsinki, Finland is adopting a three-pillar functional city approach.
- Smart city - the foundation of effective and efficient service delivery is underpinned via innovation and digital technology.
- **Inclusive city** - forms the second pillar whereby community is at the heart of areas such as the design and delivery of public services, policymaking together with the prioritization of budgets and areas of investment.
- **Sustainable city** - pillar focuses on a target to achieve carbon neutrality by 2035. and focuses on improving the quality of life, strengthening energy security and enhancing mobility.

Smart city Inclusive city Sustainable city

Source: City Websites; Media Reports & PwC Research



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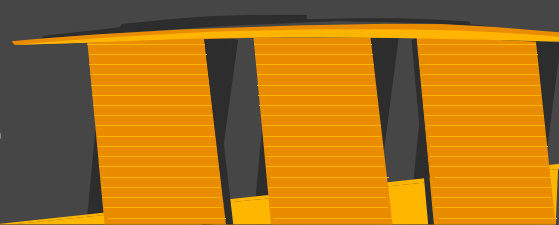
Riyadh

- Digital health initiatives played a vital role with the “Your Medicine to Your Home” initiative providing patients with medication delivery, “Seha” App providing remote medical consultations and the “Tabaud” App contact-tracing technology through the ‘Tabaud’ app.
- Riyadh benefited from the Kingdom’s fiscal support where a \$61 B economic stimulus package for the private sector including \$18.6 B of exemptions, SME support packages and an additional \$13.3 B into the banking sector.
- In addition, postponement of customs duties payment, tax measures including extending deadlines for filing tax returns and easing payment requirements for a limited period.



Singapore

- Government took decisive action to raise citizens’ awareness of covid-19 impacts by leveraging its strength in technology and data analytics.
- A state-run WhatsApp group provides citizens daily updates on confirmed cases, an advanced data tool and contact tracing mechanism identifies potentially infected individuals who may require quarantine.
- \$35 B “Resilience Budget” including \$14.6 B in loan capital for companies, property-tax rebates, and deferred corporate tax payments for three months to help ease cash flow, lower costs and increase access to credit.



Vienna

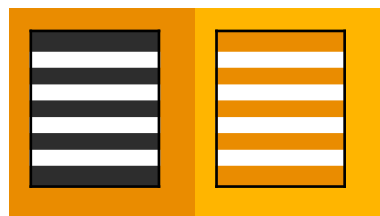
- City authorities repurposed multiple establishments such as hospital and housing units to create emergency infrastructure and free up resources.
- Municipal and community leaders have initiated a range of “life after the crisis” measures to strengthen communities against future shocks including neighborhood phone networks to organize daily help for vulnerable older or isolated residents with no family support.
- Vienna’s smaller retail businesses (stores up to 400 sq. m) started the journey by reopening with social distancing measures and requiring masks paving the way to cautiously reopen the city.



Our framework sets out a series of actions that urban leaders should take in the first 100 days

1

Clear, fact-based communication and engagement with citizens and all other key stakeholder groups



2

Develop alternative emergency funding options beyond central government sources



3

Identify technology and service continuity gaps and build effective monitoring and safeguarding operations



4

Integrated governance by a Crisis Management Control Tower(CMCT) for early warning, analyze threats and coordinated response



GRAZIE

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