

# Global COVID-19 Strategic Planning for Governments

## Addressing the Most Pressing Challenges of the Crisis

SUMMER 2020

# Executive summary

Around the world, governments at all levels are facing **enormous economic, social, and public health challenges** as they navigate recovery and rebuilding efforts in response to the COVID-19 crisis.

Now more than ever, public officials are being called upon to address the myriad of critical issues exposed or exacerbated by COVID-19. If left unaddressed, these challenges of tremendous *social, economic, health, and educational consequence* will erode the ability for societies and their residents to flourish.

The severity and effects of the COVID-19 crisis vary markedly across country, state, and city lines. As a result, governments are beginning to embark upon the long and uncertain road to recovery from unique starting points, both in terms of public health and existing regional economic and social contexts and political structures.

In implementing recovery solutions for the short and long-term, leaders at all levels have the opportunity to use this unprecedented crisis as a launchpad for *making government more effective and human-centric* and to create more innovative, livable, equitable, and resilient societies.

## OUR INSIGHTS

In building out this POV for short and long-term activities, we engaged in...

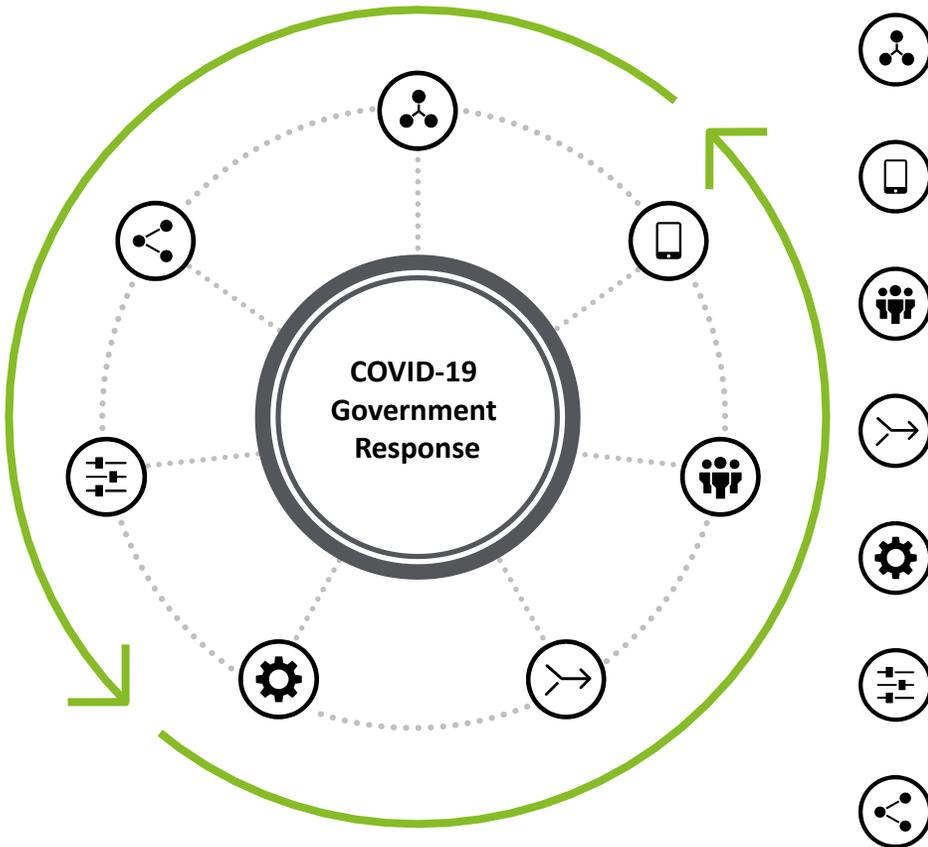
- **Conversations with Deloitte leaders** across six continents
- **3<sup>rd</sup> party research** from governments, NGOs, non-profits, think tanks, journalistic sources
- **Identifying best practices** from this crisis and successful responses in historical/analogous case studies

## IDENTIFIED GOVERNMENT CHALLENGES

 <p><i>Living &amp; Health</i></p> <p><i>Insufficient Healthcare Infrastructure</i></p>	 <p><i>Living &amp; Health</i></p> <p><i>Vulnerable Population Inequities</i></p>	 <p><i>Living &amp; Health</i></p> <p><i>Food Security</i></p>
 <p><i>Economy</i></p> <p><i>Decreased Tax Revenues &amp; Strain on Public Services</i></p>	 <p><i>Economy</i></p> <p><i>Uncertain Employment Landscape</i></p>	 <p><i>Economy</i></p> <p><i>Low Public Trust (Low Consumer &amp; Investor Confidence)</i></p>
 <p><i>Economy</i></p> <p><i>Small Business Recovery</i></p>	 <p><i>Economy</i></p> <p><i>Broadband/5G Capabilities</i></p>	 <p><i>Economy</i></p> <p><i>Supply Chain Disturbance</i></p>
 <p><i>Education</i></p> <p><i>Public Education Disruption</i></p>	 <p><i>Mobility</i></p> <p><i>Public Transit Insolvency</i></p>	 <p><i>Safety &amp; Security</i></p> <p><i>COVID Resurgence &amp; Future Public Health Crisis Planning</i></p>

# Government response themes

Seven themes sit at the center of how governments should be thinking about the challenges society faces in the midst of the COVID-19 crisis and provide a starting point for short and long term recovery efforts.

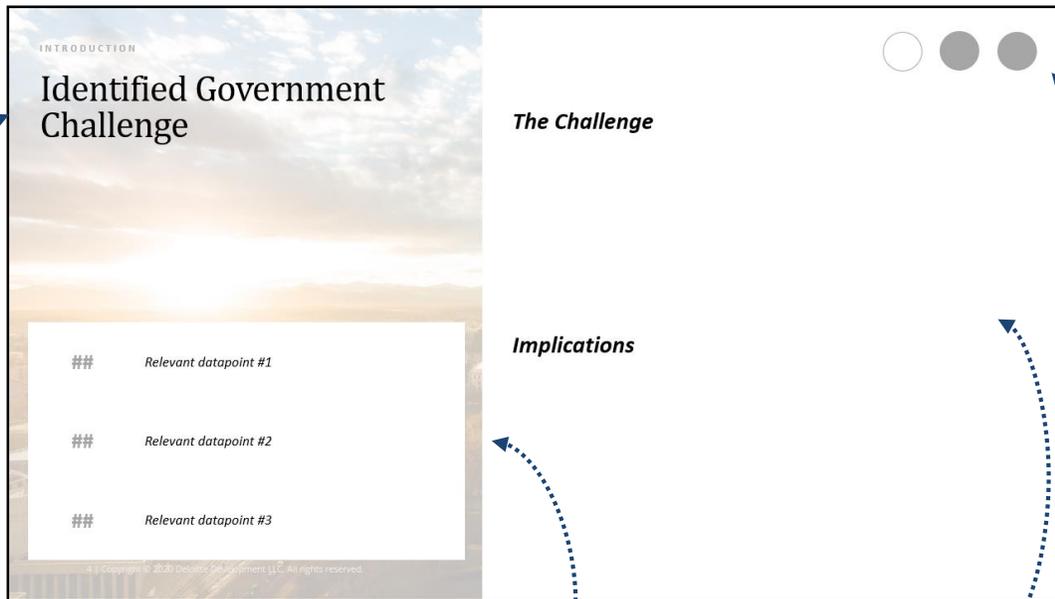


<p><b>Effective Communications &amp; Coherent Emergency Response</b></p>	<p>Governments must be agile in their ability to organize, coordinate, and communicate across government and to the public in a quick and coherent manner to meaningfully address the most dire and time-sensitive needs.</p>
<p><b>Digitalization of Government Services</b></p>	<p>Governments should be receptive to service digitalization and cross-jurisdiction shared services to increase accessibility, scale out solutions to service delivery gaps, and make the business of bureaucracy more efficient.</p>
<p><b>Open &amp; Participatory Government</b></p>	<p>Governments need to become more open and participatory with the public constituencies they represent to win public buy-in and to meaningfully enact policies that fully take resident perspectives into account.</p>
<p><b>Collaboration Across Public, Private, &amp; Social Sector</b></p>	<p>Governments must recognize the need to work together with influential private and social sector actors which possess capabilities, knowledge, and expertise in areas that governments can leverage to enact positive change.</p>
<p><b>Forward-Thinking Technology for Better Societal Outcomes</b></p>	<p>Governments should work to unlock the beneficial outcomes technology offers, including legislation to enable it and expand accessibility, education to promote it, and protections to safeguard individual privacy.</p>
<p><b>Inequality &amp; Equal Opportunity Addressal</b></p>	<p>Governments must address institutional inequities that disproportionately diminish opportunity and hinder advancement of various populations across a broad array of social domains.</p>
<p><b>Resiliency Planning</b></p>	<p>Governments must proactively move to equip society with the proper knowledge, tools, and planning for future unknown shocks that could disrupt social, economic, health, and educational stability.</p>

# How to interpret this document

Each government challenge section includes a cover slide with background information and details on why the challenge has become relevant during the crisis. Additionally, two content slides provide insight on what short and long-term activities governments can consider in response to the challenges being exposed or exacerbated by COVID-19.

## COVER SLIDE



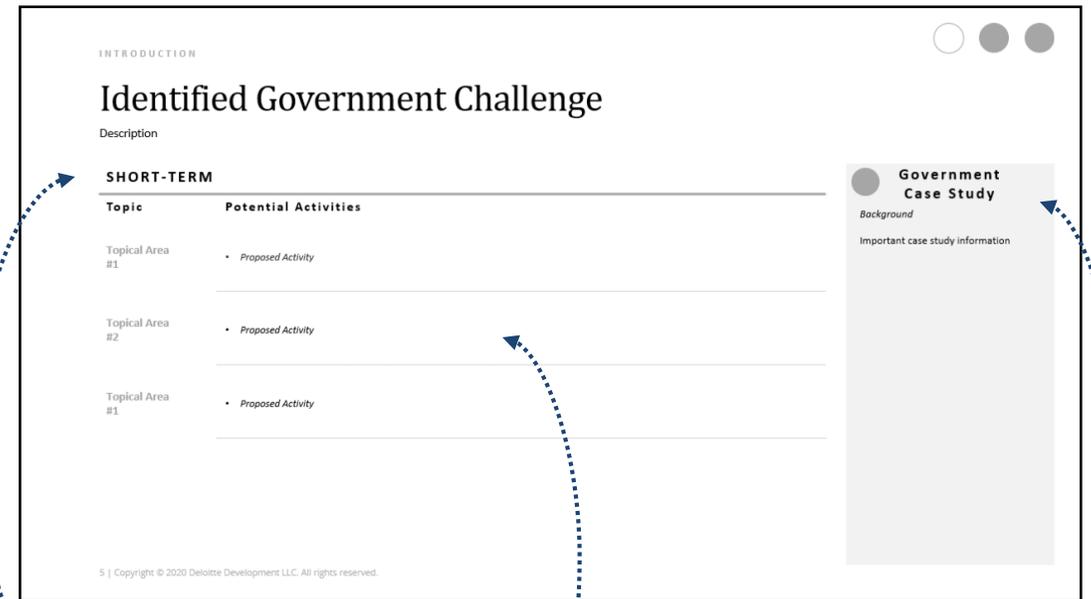
**Identified Government Challenge**  
Indicates challenge being discussed

**Notable Datapoints**  
Notes relevant datapoints pertaining to the challenge through a global and a US lens

**The Challenge & Implications**  
Describes the context and the importance of the challenge and its effects on society without intervention

**Topical Area Marker**  
Marks topical areas throughout the document

## CONTENT SLIDE



**Time Horizon**  
Indicates focus on either short or long-term potential activities

**Potential Activities**  
List of high-level activities that governments can consider (driven by interview insights, research, and thought leadership)

**Government Case Study**  
Illustrates a historical or analogous government (city/state/federal) response that has proven to be successful in combatting the challenge

# Insufficient healthcare infrastructure



**3.5B**

*Number of people globally that lack access to essential health services*

**800M**

*Number of people globally that spend >10% of household budget on healthcare (100M are pushed into extreme poverty)*

**1.1B**

*Projected 2020 US telehealth visits (900M for COVID-19) leading to 80% telehealth market growth in 2020*

## ***The Challenge***

In the current COVID-19 crisis, healthcare systems have been overwhelmed on multiple fronts. Patients have rapidly filled up emergency rooms and internal care unit spaces, shortages of medical and personal protective equipment have hampered efforts to treat the surging number of cases, and healthcare staff have increasingly faced exposure and infection. Additionally, lack of telehealth infrastructure and spotty broadband access for low-income and rural residents have precluded efforts to quickly transition to digital-based care. All of these factors, compounded by the rapidly-depleting budgets of healthcare networks, are putting tremendous pressure on systems ill-designed to handle massive influxes of patients in such short periods of time.

## ***Implications***

As observed globally, the consequences of insufficient healthcare infrastructure – including both physical and digital infrastructure, as well as emergency response coordination – have been catastrophic. Overwhelmed hospitals, shortages of equipment that have forced doctors to reuse protective equipment, and lack of coordination among government agencies to supply adequate testing kits and medical resources have resulted in suppressed abilities for healthcare systems to test and treat patients. Using this crisis to fortify not only healthcare infrastructure, telehealth capabilities, and supply chains, but also to take a second look at response plan preparedness and healthcare access, would go a long way in helping governments prepare for future resurgences of COVID-19 and other health crises that threaten to strain healthcare systems.



# Insufficient healthcare infrastructure

Short-term efforts should focus on optimizing resource allocation, streamlining the testing and results reporting process, ensuring emergency actors understand their responsibilities, and easing strain on emergency healthcare staff/operations.

## SHORT-TERM

Topic	Potential Activities
<p><b>Essential Resource Allocation</b></p>	<ul style="list-style-type: none"> <li>Accelerate telehealth use by strategizing deployment tactics and identifying bureaucratic hurdles to address (e.g., authorizing healthcare plan coverage, easing certain regulations)</li> <li>Implement systems using predictive analytics to monitor and track resource usage of essential medical and personal protective equipment in hospitals to optimize allocation of resources across hospital networks</li> <li>Assess and authorize human resource allocations to transition hospital/healthcare staff from lower-demand roles into essential roles carrying out testing, patient triage, test results processing, and other critical functions</li> <li>Coordinate across health department jurisdictions to optimize health staff supply for areas that need it most</li> </ul>
<p><b>Testing &amp; Results Reporting Ecosystem</b></p>	<ul style="list-style-type: none"> <li>Validate that testing/tracking response roles and responsibilities are well-known across the test results reporting ecosystem to minimize confusion in duties (e.g., local/state health departments, state emergency operations centers, state IT departments)</li> <li>Provide testing sites and labs with clear data standards to streamline test reporting processes and diminish potential data backlogs</li> <li>Develop online test scheduling system and results portal for patients, and promote drive-thru testing capabilities, to keep individuals from unnecessarily entering hospital facilities and to hasten test results communication to patients</li> <li>Develop contact tracing APIs which can be integrated into health IT infrastructure; make case information securely available online</li> </ul>
<p><b>Civilian &amp; Private Sector Engagement</b></p>	<ul style="list-style-type: none"> <li>Collaborate with private sector to repurpose business operations in the effort against COVID-19 (e.g., leasing hotel spaces/rooms or exhibition halls for hospital workers/patients, rideshare for health or other essential workers, deliveries for medical equipment)</li> <li>Establish and implement plan for volunteer or temporary work programs to boost administrative/logistical healthcare capacities (e.g., establishing temporary high-capacity call centers)</li> </ul>
<p><b>Healthcare Relief Funding</b></p>	<ul style="list-style-type: none"> <li>Coordinate a statewide reimbursement strategy which outlines eligibility requirements, procurement, and compliance of funds in line with federal standards; assess associated restrictions to ensure hospitals can utilize grants and aid monies to remain solvent in the short-term</li> <li>When allocating relief funding to hospitals, take into account COVID-19 predictive factors such as: actual and/or projected number of COVID-19 cases in the hospital service area, foregone revenue as a result of postponed or cancelled elective surgeries, and historic costs of uninsured patients at the specific healthcare facility</li> <li>Allocate financial resources to support the transition to telehealth primary care, as well as digital mental health resources including the subsidization of telehealth system implementation</li> </ul>



## Chile

*In recent years, Chile has been at the forefront of South America in advancing telehealth care. Using a privately-created API-based model, Chile has made its national health IT architecture and data linkages more interconnected.*

Faced with the prospect of COVID-19 patient influxes stretching hospital capacities thin, Chile accelerated adoption of telehealth services via its Digital Hospital initiative.

The Ministry of Health launched *Hospital Digital* in 2019 to increase healthcare efficiency and accessibility, as well as to minimize physical traffic in the public health system.

To date, health authorities such as the National Center of Health Information Systems (CENS), a collaborative between government, academia, and private sector pharma / med-tech, have secured telehealth sponsorship for 40 specialties by the public health system.



# Insufficient healthcare infrastructure

Long-term efforts should emphasize codifying emergency protocols, expanding physical infrastructure capacity, and promoting healthcare digitalization.

## LONG-TERM

Topic	Potential Activities
<b>Emergency Preparedness Planning</b>	<ul style="list-style-type: none"> <li>• Delineate emergency coordination plans and criteria and procedures among health authorities and government emergency personnel to ensure alignment around accountability and required actions in times of crisis</li> <li>• Create a playbook of potential actions and communications in partnership with hospital networks regarding resource allocations, testing facilities, and distribution plans of essential materials</li> <li>• Strengthen relations with private/social sector, other public health systems, and researchers to create response-readiness and crises testing capacity plans; foster a relationship of dialogue, resource-sharing, and subject matter expertise</li> </ul>
<b>Pandemic Response Infrastructure</b>	<ul style="list-style-type: none"> <li>• Boost pandemic-ready infrastructure through the construction of isolation hospitals/centers with permanent and convertible negative pressure spaces which can be used to isolate infected patients in future public health crises</li> <li>• Create a conversion process playbook of large, public spaces that could be used as isolation hospitals/facilities during public health crises</li> <li>• Designate and publicize clinic and physician networks of “designated treatment/testing providers” during outbreaks</li> </ul>
<b>Asset Resource Management</b>	<ul style="list-style-type: none"> <li>• Implement data-driven supply chain diagnostic tool/digital twin to better allocate and predict resource requirements, as well as potential supply constraints, across hospital networks to inform scenario planning</li> <li>• Consider diversifying supply networks for essential medical and personal protective equipment</li> </ul>
<b>Health Digitalization</b>	<ul style="list-style-type: none"> <li>• Partner with community service providers to address the healthcare digitalization needs of local communities</li> <li>• Spearhead efforts to make all types of telehealth (e.g., primary, specialty, mental health) more accessible for all, including the elderly, disabled, and rural residents; work with public and private healthcare and insurance providers to support universal telehealth access</li> <li>• Facilitate the upgrade of legacy health records systems and consider investing in API-based IT systems to improve service, expedite resource allocation, minimize errors in medical record tracking, and better connect healthcare data among public health staff, physicians, and patients</li> <li>• Assess and, if necessary, improve cybersecurity capabilities to protect confidential, digitalized patient records</li> </ul>
<b>Supply-Side Expansion</b>	<ul style="list-style-type: none"> <li>• Assess opportunities to expand physician career pathways and/or incentivize privately-funded residency programs to increase the supply of healthcare workers</li> <li>• Review spending on preventative public health and infectious disease personnel and preparedness efforts against recommended benchmarks</li> </ul>



## Singapore

*After its experience with the 2003 SARS outbreak, Singapore outlined a long-term strategy to increase health infrastructure and planning to better prepare for future viral outbreaks.*

Major government steps included:

- **Laying the foundation for a taskforce** across government agencies that could be called upon during a pandemic to coordinate strategic actions
- **Creating scenario/response plans** for government to refer to in crisis
- **Expanding physical infrastructure** such as hospitals, isolation centers, and playbooks for hospital-use space conversions
- **Fostering strong relationships** with the public health and scientific research community to promote dialogue and resource-sharing
- **Operationalizing digital and manual contact tracing** to confirm that individuals who might be infected can self-isolate

# Vulnerable population inequities



## ***The Challenge***

Although their definition varies across countries, vulnerable populations generally encompass ethnic/racial minorities, the elderly, those with chronic health conditions, the disabled, the homeless, immigrants, migrant workers, and women with children. Pre-crisis, these populations already faced stark inequities and significant barriers to favorable socioeconomic outcomes. Widespread economic shutdowns due to COVID-19, and the resulting economic instability has only exacerbated this challenge. Mandated business shutdowns, halted supply chain production, and nationwide school closures have eliminated the means by which millions of people obtain the income, food, and healthcare needed to remain out of poverty, leading to disproportionately worsened socioeconomic outcomes.

## ***Implications***

Already-underserved populations will see their struggle worsened, as government ability to provide financial support diminishes. These groups tend to hold low-wage employment and be more involved in the informal – not monitored, registered, or taxed by government – economy, face higher rates of pre-existing health conditions, and have less access to information/resources. For many of them, the economic crisis has depleted their only income streams, exacerbating the risk of poverty for large swaths of the global population. To avoid perpetuating the poverty trap and existing inequalities, governments should develop innovative, swift, and targeted solutions, looking to private/social sector partners where applicable. Without government support, it is unlikely that these populations can successfully recover in the short-term should the economic shutdown persist.

**60%**

*Drop in informal worker income due to lockdowns globally during the first month of the crisis*

**265M**

*People in low and middle-income countries expected to become food insecure due to the economic impact of COVID-19, up by 130M from 2019*

**49M**

*People potentially pushed into extreme poverty (<\$1.90/day) due to the economic shock of COVID-19; 70M-180M person increase living on <\$5.50/day*



# Vulnerable population inequities

Short-term efforts should focus on expanding immediate access to employment support, healthcare, and food, while leveraging the expertise, resources, and data capabilities that the private and social sector can offer in this realm.

## SHORT-TERM

Topic	Potential Activities
<b>Emergency Health &amp; Wellness Measure Implementation</b>	<ul style="list-style-type: none"> <li>• Launch taskforce/committee to collaborate across departments to oversee government response around vulnerable populations</li> <li>• Consider removing financial/administrative barriers to COVID-19 testing and treatment for vulnerable cohorts</li> <li>• Issue clear public health communications and educational messaging catered to vulnerable populations surrounding appropriate hygiene and cleanliness measures, and how to access medical and knowledge-based resources</li> <li>• Deploy mobile testing units to individuals lacking access to transportation, physical mobility, or physical proximity to testing centers (e.g., inhabitants of informal areas, the elderly and disabled, rural residents)</li> <li>• Assess policies around medical treatment of immigrants and migrant workers at public clinics to mitigate viral contagion of immigrant neighborhoods which tend to be lower-income, more densely populated, less reached by government, and more involved in essential labor</li> <li>• Consider assessing and expanding resource provision for domestic violence shelters/hotlines and engaging potential users via multi-channel approaches to allow women, children, and others who need them, access to resources despite being in lockdown</li> <li>• Create and implement social distancing plans for prisons, shelters, and state-run facilities that do not normally allow for distancing measures</li> </ul>
<b>Economic Protections</b>	<ul style="list-style-type: none"> <li>• Issue short-term payment moratoriums on essential services (e.g., rent/mortgage, electricity/water, and broadband/phone service) to alleviate financial strain for households whose necessary service bills make up a disproportionately greater share of income</li> <li>• Designate food production workers (e.g., cashiers/clerks, grocery stockers, distribution personnel, janitors) as emergency personnel to allow them greater access to social safety net benefits including expanded healthcare access and childcare provision</li> <li>• Work with the social sector to expand education on and access to humanitarian, multipurpose cash transfers to provide a flexible liquidity mechanism for low-income populations; consider issuing remittance tax relief on vital remittance flows to vulnerable groups</li> </ul>
<b>Private &amp; Social Sector Collaboration</b>	<ul style="list-style-type: none"> <li>• Collaborate across public/private entities to convert unutilized high-capacity spaces (e.g., universities, sports arenas, convention centers) into temporary shelters, isolation areas, or low-income housing for homeless individuals</li> <li>• Collaborate with private sector to meet emergency labor demands by connecting unemployed, low-wage workers with high-demand logistics, manufacturing, agricultural, and other critical industry short-term employment opportunities</li> <li>• Aggregate and analyze data of demand hotspots within informal and low-income neighborhoods to identify areas in most need of vital healthcare/testing, hygiene, food, and other supply relief to optimize distribution of emergency supplies</li> <li>• Work with private/social sector to source and distribute pop-up hygienic stations in areas lacking basic infrastructure (e.g., sanitizing stations, portable toilets, filtered water pumps)</li> </ul>



## City of Bogotá

*In light of COVID-19, the City of Bogotá has implemented stringent social distancing rules. Since more than half of the population belongs to the informal sector and 11.6% of residents live in poverty, special measures were enacted to mitigate the effect of mandated shutdowns on the disenfranchised.*

- **Simulacro vital obligatorio** – Week-long stay-at-home drill to allow city officials to understand resources needed for successful quarantine, survey citizens, and develop aid initiatives focused on: food subsidy/delivery, elderly support, and medical equipment distribution
- **Home Solidarity City System** – Minimum income program assisting 350,000 families in poverty with 65% of expenses and 150,000 vulnerable households with basic food expenses for the first 23 days of the lockdown
- **Donaton Bogotá** – City-led fundraiser that raised \$13M from private/social sector for food and financial aid for the city's most vulnerable residents



# Vulnerable population inequities

Long-term efforts should focus on identifying and addressing gaps in government service and proactively laying the infrastructural and policy groundwork for economic empowerment, healthcare and education access, and basic government service provision.

## LONG-TERM

Topic	Potential Activities
<b>Service to Marginalized Populations</b>	<ul style="list-style-type: none"> <li>Strengthen ties with civic associations, NGOs, academia, and private sector to define and identify vulnerable populations and areas lacking basic government services, using their collective knowledge to inform strategies for appropriately addressing needs</li> <li>Encourage the creation of neighborhood/civic associations to foster inclusion and government engagement to better understand local needs; create taskforces in partnership with these neighborhood groups to develop plans for meeting development needs</li> <li>Develop roadmap for vulnerable areas/groups with development targets that clearly defines timelines, mechanisms, and accountability for meeting stated goals (e.g., lifting populations out of poverty, guaranteeing government services, etc.)</li> <li>Spearhead public-private partnerships to launch and oversee initiatives that expand access to healthcare, education opportunities, skill-building resources, broadband, electricity, and water/sanitation within marginalized communities to support residents and businesses</li> </ul>
<b>Financial Access/Literacy Augmentation</b>	<ul style="list-style-type: none"> <li>Assess viability of introducing mobile financial service platforms to increase formal banking opportunities for rural and fringe residents (e.g., cashing in/out funds, sending money, paying bills, microloans, etc.)</li> <li>Partner with microfinance institutions to increase access to financial capital for individuals and businesses</li> <li>Launch education campaigns to increase financial literacy and encourage banking system engagement</li> </ul>
<b>Economic Actor Formalization</b>	<ul style="list-style-type: none"> <li>Work with informal worker associations and local trade unions to build-out formalization plans to incorporate businesses and workers under societal protections, and provide input to help informal sector actors operate more efficiently and productively</li> <li>Expand business/economic rights and legal protections for members of the informal sector such that participants have greater knowledge of and ability to exercise property rights, labor rights, justice system functionalities, and financial market capital</li> <li>Assess and enact formalization incentives to ensure that the benefits of formalizing businesses outweigh the licensing, tax, regulatory, and other administrative costs of joining the formal sector and that informal sector actors recognize these positive trade-offs</li> <li>Launch campaigns and communications strategies to educate informal actors about the formalization process (e.g., business registration, paying of business taxes) and its benefits, dispel myths about becoming a formal actor, and detail how they can get started</li> </ul>



## City of Durban

*Following the end of South African apartheid and Constitutional endowment of local government responsibility to actively develop economic plans for the benefit of all citizens in 1996, Durban launched a participatory, development strategy incorporating informal sector perspectives. In 2001, the eThekweni Municipality adopted the City's plan as the Informal Economy Policy.*

The plan involved informal sector populations in economic planning by:

- Actively engaging in dialogue** with low-income informal laborers to gain insight on operational pain points
- Executing infrastructure projects** to close gaps in building deficiencies and increase vending space opportunities
- Strengthening formalization incentives** such as lowering utilities tariffs, offering business/vocational training, and simplifying licensing
- Expanding microfinance capital and service opportunities** for informal sector entrepreneurs

# Food security



## **The Challenge**

While countries continue to fight COVID-19, secondary impacts of the global economic shutdown have led to a looming “hunger pandemic.” Panic-buying by consumers has put a strain on supply chains, lockdown measures and border closures have affected the regional movement of agricultural commodities and migrant workers, and delayed harvest season will likely result in production declines for the coming season, prolonging the impact of the pandemic. The shutdown has compounded existing food insecurity as the global food supply chain is disrupted at every level, making life for the 821M people that suffer from hunger worldwide even more unstable.

**130M**

*Increase in number of people (from 135M to 265M) in low and middle-income countries severely threatened by acute hunger due to pandemic’s effects on food networks from 2019 to 2020*

**310M**

*Number of children globally that receive meals at school through feeding programs in low and middle-income countries impacted by school closures*

**14.3M**

*Food insecure US households in 2018, meaning these households were uncertain of having, or unable to acquire, enough food to meet the needs of all their members*

## **Implications**

With future agricultural production threatened by lack of labor and inputs, some experts fear that pandemic-related hunger and malnutrition will take more lives than COVID-19. In particular, countries with higher proportions of low-income residents are more likely to face challenges in food access. A well-informed response to the food security impacts of COVID-19 requires understanding the pandemic’s effects on particular demographics and geographies and their unique food system vulnerabilities. While both the public and private sector have begun addressing the short-term food crisis, governments must also implement long-term strategies to avoid potential months-long backlogs in essential food delivery and protect millions of already food insecure people.



# Food security

Short-term efforts should focus on addressing key logistics bottlenecks in the food supply chain, stabilizing market prices, and expanding and improving emergency food assistance / social protection measures.

## SHORT-TERM

Topic	Potential Activities
<b>Emergency Production, Monitoring, &amp; Distribution</b>	<ul style="list-style-type: none"> <li>• Stand-up data-driven food crisis response team to leverage supply chain analytics and shared public/private sector data to gain insight into existing crop/livestock needs and real-time food distribution patterns to address food security gaps and improve distribution plans</li> <li>• Collaborate across agencies and with the private sector to create and implement guidance on risk-based approaches and protocols to reopen food production facilities to maintain steady agricultural output</li> <li>• Coordinate data-sharing and food supply chain analysis with public/private telecommunications companies, social media organizations, and transnational organizations to collectively monitor supply constraints, the delivery of emergency assistance, and triage supply bottlenecks</li> <li>• Provide financial and technical resources (e.g., production incentives, free transit for supply trucks) to help fast-track the supply of agricultural commodities and finished goods to hard-hit areas</li> </ul>
<b>Food Market Price Stabilization</b>	<ul style="list-style-type: none"> <li>• Consider promoting and expanding access to digital, multi-channel solutions to provide agricultural suppliers and consumers greater opportunities for executing transactions, especially among marginalized communities and rural areas</li> <li>• Address complaints of price gouging and profiteering by investigating cases of exorbitant food price increases</li> <li>• Consider working with trade partners at the national level to remove existing tariff or import duties to allow for freer movement of agricultural commodities on the global and regional level to ease strain on food prices</li> </ul>
<b>Social Safeguard Enaction</b>	<ul style="list-style-type: none"> <li>• Minimize business closures in the food and agricultural sector by fast-tracking loans and grants that increase cash flow and reduce the impact of the pandemic on the most vulnerable populations (e.g., funding for safety net programs)</li> <li>• Expand access to food assistance programs for vulnerable populations and provide other emergency support for households already enrolled in children's food assistance programs (e.g., free or reduced-price school meals)</li> <li>• Utilize public infrastructure (e.g., school cafeterias, school buses) to provide food service options in place of school food programs and to distribute foodstuffs at the community level</li> </ul>



## China

*Following the initial COVID-19 outbreak, the State Council set up the Joint Prevention and Control Mechanism which released policies focused on ensuring stable production and supply of agricultural products during the crisis.*

The Ministry of Agriculture and Rural Affairs created a "food basket" subgroup in the Mechanism's logistics group to:

- **Define a risk-based production strategy** indicating how and when farming activities could resume in order to maintain steady output
- **Provide technical farming trainings and support** via live social media and telephone streams
- **Match agricultural supply to demand** via multi-channel, online service platforms, and 'shared labor' and 'shared store' concepts

So far, the **Mechanism's multi-level and multi-channel approach has resolved food supply chain issues**, kept prices stable, and prevented mass shortages.



# Vulnerable population inequities

Long-term efforts should focus on enabling the widespread adoption of future technologies in agriculture, building more diverse and localized food systems, and addressing sustainability-oriented concerns of agricultural production.

## LONG-TERM

Topic	Potential Activities
Future of Agriculture	<ul style="list-style-type: none"> <li>• Guide the adoption of connected technologies among small and medium-sized farming enterprises and communities to drive increased land productivity and crop yields, improve crop performance oversight, and maximize resource efficiency</li> <li>• Implement policy and financial incentives to promote adoption of connected technologies, including assessing agricultural regulations and expanding availability of grants/funding for investment in agritech innovations (e.g., remote sensing, machine learning agribots)</li> <li>• Invest in infrastructure to enable the use of future technologies in agriculture, including constructing broadband infrastructure, deploying small cells, and engaging agricultural sector actors to pilot precision agriculture devices</li> <li>• Drive technological advancement in e-commerce agribusiness exchanges and mobile payment systems to expand market access for farmers</li> </ul>
Local Food Economy Diversification	<ul style="list-style-type: none"> <li>• Support a more circular economy to diversify local food production, processing, and markets in order to minimize food security risk (e.g., farmers markets, urban farms, community gardens)</li> <li>• Assess existing regulation and zoning policies to pinpoint ways of promoting the expansion and incentivization of locally-sourced food (e.g., tax incentives for businesses with minimum share of locally-sourced food, pop-up markets, farmers market policies)</li> <li>• Partner with microfinance institutions to facilitate sustainable entrepreneurship programs among rural and smallholder farmers to expand working capital and augment local diversified farming production</li> <li>• Work with local and rural civic groups to identify solutions for boosting growth of smallholder farming</li> </ul>
Long-Term Sustainability	<ul style="list-style-type: none"> <li>• Expand agricultural education programs to teach producers the benefits of long-term sustainable farming practices such as crop diversification/rotation, and to increase understanding of how precision technology use reduces resource consumption and soil erosion</li> <li>• Reduce long-term threats to crop and livestock systems by implementing cash-for-work programs that strengthen climate resilience through the construction of irrigation systems, bunding and terracing programs, and reforestation/restoration of depleted lands</li> </ul>
Farm Policy	<ul style="list-style-type: none"> <li>• Consider enacting farm policy that protects farmer and rancher working conditions, ensures their inclusion in future assistance legislation, and provides robust risk management protection (e.g., crop insurance)</li> </ul>



## Israel

*Beginning in the early 2000s, the Israeli government began actively setting up and helping fund agritech incubators to drive sector investment and growth.*

Significant investment has led to the **establishment of many cutting-edge and innovative start-ups** focused on developing solutions to some of the most pressing agrarian issues. Some of these companies include:

- **Skyx** – a robotics company that developed a modular fleet of autonomous drones for spraying crops and harvesting yields
- **SeeTree** – a data science company that developed a wide array of remote sensors to allow farmers comprehensive crop monitoring
- **Beewise** – an artificial intelligence company that created the world's first autonomous beehive to care for bee populations remotely

In Q1 and Q2 2017, **Israeli companies raised \$80M** for on-farm technologies focusing on productivity improvements.

# Decreased tax revenues & strain on public services



**\$549.7B**

*Projected 2020 global retail spending decline (3% decline from 2019) leading to lower consumption tax revenues*

**\$650B**

*Projected aggregated US state budget shortfall over the next 3 years*

**98%**

*US cities of more than 50,000 residents that anticipate a budget shortfall this year*

## ***The Challenge***

Widespread economic shutdown and resulting layoffs caused by the pandemic have resulted in precipitous declines in government budgets from lost tax revenues, including income (e.g., personal, corporate), consumption (e.g., sales, excise, tariffs), value-added, and property taxes, among others. These large decreases have imposed a tremendous burden on governments' ability to fund vital services such as public health, transit, police, fire, and other essential services, as their functioning relies heavily on steady tax revenues. Additionally, large and unforeseen healthcare expenditures to combat COVID-19 are further straining governments' ability to operate.

## ***Implications***

Constrained governmental budgets can have deleterious consequences for large swaths of the population and further deteriorate outcomes for society's most vulnerable. As noted, decreased tax revenues limit governments' ability to provide essential public/social services – functions necessary during recessionary environments when more individuals often require financial and social support. Often times, to address these tight budget scenarios, governments are forced to cut back public services and furlough personnel, leading to diminished provision of essential services in a greater time of need. Such austerity measures have been shown to negatively impact recovery in the aftermath of past economic crises.



# Decreased tax revenues & strain on public services

Short-term efforts should focus on remaining financially operational where possible and finding ways to spark investment and business activity where safe.

## SHORT-TERM

Topic	Potential Activities
<b>Budget Capacity Expansion</b>	<ul style="list-style-type: none"> <li>Stand up a committee to assess the landscape of available special emergency funds to best position the jurisdiction for application success and maximize emergency fund reimbursement of government</li> <li>Consider issuing social ‘corona bonds’ as an alternative financing tool to raise much-needed funds via debt financing</li> <li>Engage in thorough assessment of financial situation to identify budgetary levers that can be pulled to increase solvency (e.g., issue hiring freeze on non-critical government positions, stagger public services and service shifts in non-essential areas to recoup operational costs)</li> <li>Consider reorienting government workforce by switching labor to areas of highest demand (e.g., processing financial assistance requests, aiding in hospital/healthcare facility administration departments) to save on labor overhead while keeping staff on payroll</li> </ul>
<b>Relief Funding Allocations</b>	<ul style="list-style-type: none"> <li>Designate a steering committee to oversee strategy and disbursement of federal funds using data analytics to guide funding allocations and prioritize hardest hit sectors and levels of government</li> <li>Consider allocating relief funding to lower levels of government taking into account tax revenue composition and concentration of at-risk economic industries (e.g., cities dependent on sales taxes will see more immediate budget hit and cities dependent on tourism/hospitality will suffer more than economically-diversified cities)</li> <li>Consider increasing federal contributions to jointly-funded government programs for an extended period of time to maintain the provision of services to vulnerable populations and to keep program contributions from rendering state/local budgets insolvent</li> </ul>
<b>Business Reopening &amp; Incentives</b>	<ul style="list-style-type: none"> <li>Coordinate with private sector to develop and implement risk-based approaches to reopening businesses based on geographic location, company size, sector, and tactical protocols (e.g., mask usage, occupancy limits, social distancing) to revive sales and income tax revenues</li> <li>Conduct ongoing assessments to prioritize which regulations can be safely and temporarily loosened to allow businesses to focus on recovery</li> <li>Consider extensions on, or expediting of, authorized permits/licenses (e.g., select sales licenses, construction projects) to minimize administrative burdens to reopening, except licenses that could imperil public safety without proper review</li> </ul>



## Guatemala

*On April 21<sup>st</sup>, Guatemala became the first sovereign entity to raise debt capital by issuing ‘social bonds’ to directly finance its COVID-19 response. The country received \$8.1B in orders for its \$1.2B bond sale from investors in Europe, Asia, Latin America, and the US.*

The capital raised from the sale will help finance initiatives to support: **healthcare infrastructure, business loans, preventative health practices, food security, and the government’s other COVID-19 budget obligations.**

Following similar principles as other social bonds, including ‘green bonds,’ issuers **should ensure transparency and impact reportability of capital usage.**

Supranational banks including the World Bank, European Investment Bank, Inter-American Development Bank, and African Development Bank, have **issued similar COVID-19 bonds, equaling \$15B by the end of April.**



# Decreased tax revenues & strain on public services

Long-term efforts should focus on adjusting incentives to stimulate commercial activity and taking steps to safeguard against future economic downturns.

## LONG-TERM

Topic	Potential Activities
Tax-Focused Incentives & Structure	<ul style="list-style-type: none"> <li>Review corporate tax codes for opportunities to incentivize greater investment and rehiring post-crisis, focusing on segments that mitigate future public health risk or most heavily-impacted sectors (e.g., epidemic resiliency investment tax credits, tourism/hospitality incentives)</li> <li>Consider incentivizing the development of clustered economic development zones or innovation hubs near existing public infrastructure to promote innovation and attract jobs and capital</li> <li>Consider assessing and modernizing tax rules related to remote work as the future of employment will have a greater reliance on telework and tax policies such as double taxation, among other compliance rules, create tax complexities for businesses/individuals</li> <li>Consider creating a regional tax-sharing plan whereby multiple communities pool a portion of the tax base to share the benefits/costs of regional growth and smooth out revenue competition among jurisdictions</li> </ul>
Public Service Optimization	<ul style="list-style-type: none"> <li>Implement analytics-driven platforms to optimize the deployment of existing public services (e.g., police/fire dispatch, trash collection, sanitation/sewage services) to cut down operational costs</li> <li>Leverage big data and artificial intelligence-driven technology for public transit operations to optimize route planning, timetables, public accessibility, and better match transit supply/demand</li> </ul>
Rainy Day Fund Minimum	<ul style="list-style-type: none"> <li>Consider rethinking how the government trust fund is funded, how funds can be utilized, and how fiscal planning can be disaster-proofed to take future emergency expenditures into account</li> <li>Consider allocating budget for rainy day fund to improve debt ratio and credit rating, and to hedge against future fiscal disruptions, taking into account business cycle trends, expected/real GDP output, and emergency spending mechanisms</li> </ul>

### Switzerland

*In 2001, 85% of the Swiss population voted to pass a “debt brake” referendum, officially enacted in 2003. Through it, the federal government is obligated to structurally balance its budget to flatten economic cycle fluctuations.*

The “debt brake” works as follows:

- **Budget expenditures are calculated from expected revenues using a cyclical factor** that accounts for economic environment, thereby smoothing out revenue expectations over a multiyear outlook
- **Revenue surpluses** credit the ‘compensation account’ and help pay down debt, and deficits debit the account and require subsequent budgets to recoup these deficits

In this way, Switzerland balances its budget over time, allowing it to reduce national debt and improve fiscal resiliency. **From 2007-2017, it managed an average budget surplus of 0.5%.**

# Uncertain employment landscape



## ***The Challenge***

The global economic shutdown has caused a massive rise in unemployment across the world and has left no economy untouched. With unemployment figures for the world's largest economies having risen to, or expected to rise to, extremely high levels – 14%, 9%, and 6% for the US, the European Union, and China, respectively – there is increasing strain on social safety nets for unemployment support and other social safety net guarantees. While estimates on the duration of the downturn vary, high unemployment is expected to continue until at least 2021, leaving millions around the world with limited economic and job prospects, and an uncertain employment landscape.

**305M**

*Expected job loss equivalent as a result of COVID-19 (assuming a 48-hour work week)*

**37.5%**

*Percent of global employment in four of most dramatically-affected sectors (e.g., food/accommodation, retail/wholesale, business services/administration, and manufacturing)*

**75M**

*Expected job displacement by the 4<sup>th</sup> Industrial Revolution from 2018-2022*

## ***Implications***

With so many people out of work and applying for unemployment benefits, welfare systems are crashing amidst heightened demand and social service systems are being stretched to provide financial, food, and health assistance to millions more individuals than usual. At present, it is uncertain how some of the most heavily-impacted industries (e.g., tourism/hospitality, retail/wholesale, food services) will rebound from the pandemic shutdown and begin bringing back displaced workers, given uncertainty over future waves of COVID-19 and lagging consumer/investor confidence in societal reengagement. Furthermore, it is unclear how masses of unemployed workers will be reintegrated into the workforce and when companies will return to pre-crisis employment levels.



# Uncertain employment landscape

Short-term efforts should focus on mitigating the financial stress on the unemployed and businesses, and creating fixed-term employment that can both combat the virus and put people to work.

## SHORT-TERM

Topic	Potential Activities
<b>Business &amp; Unemployment Relief Measures</b>	<ul style="list-style-type: none"> <li>Consider directly subsidizing worker payrolls to keep employees on work payrolls and ease cash flow strain on businesses, allowing workers to avoid the burden of applying for unemployment benefits, losing health insurance, and job search uncertainty</li> <li>Consider issuing relief loans for businesses to cover inventory, which can be paid off over a longer-term payback plan, in order to assist cash flow for businesses, allowing them to redirect funds to keeping employees on payroll</li> <li>Develop and implement risk-based approaches to reopening businesses in tandem with private sector based on geographic location, company size, company type, and tactical protocols (e.g., mask usage, occupancy limits, social distancing) to stimulate economic activity and hiring</li> <li>Consider temporarily expanding unemployment insurance contributions to ease heightened financial burdens on lower levels of government</li> </ul>
<b>Unemployment Benefits</b>	<ul style="list-style-type: none"> <li>Implement data-driven solutions (e.g., configure automated tools to auto-fill necessary forms and to quickly determine benefit eligibility) to streamline unemployment benefits system transactions due to high staff/resource burden and unprecedented application volumes</li> <li>Collaborate with trade associations, industry guilds, and community/social service organizations for assistance in identifying the most vulnerable workers and families that need expedited payments</li> <li>Consider implementing safeguards to ensure that contract and gig workers, as well as other non-traditional employee classes, receive fair unemployment benefits based on full yearly income</li> </ul>
<b>COVID-Related Fixed-Contract Employment &amp; Business Repurposing</b>	<ul style="list-style-type: none"> <li>Facilitate hiring matching programs in conjunction with private sector (e.g., healthcare, grocery, logistics, manufacturing) to minimize labor market friction and match recently laid-off employees with new virus-driven employment demand</li> <li>Work with the private sector to subsidize business operations repurposing (e.g., leasing hotel spaces/rooms or exhibition halls for hospital workers/patients, repurposing private factories to produce medical equipment) to maintain payrolls and combat COVID-19</li> <li>Hire 'disease detectives' to aid in anti-virus contact tracing efforts alongside health and local authorities (estimates of necessary contact tracers in the US vary from 100,000 to 300,000); official recommendations suggest having 30 contact tracers for every 100,000 residents</li> <li>Partner with private sector call centers and related organizations to enlist temporary workers to boost headcounts and help process large inflows of unemployment benefits applications</li> </ul>



## Germany

*The German system of Kurzarbeit – or “short-time work” – gained renown in keeping unemployment from skyrocketing during the 2008 financial crisis and in helping the German economy rebound faster than other developed economies.*

*Kurzarbeit works by:*

- **Directly subsidizing** worker wages at 60% to keep employees on payroll and to keep them financially afloat
- **Allowing businesses to cut working hours** rather than entirely cutting employees so that once production picks back up, they can easily return to their jobs
- **Allowing companies to add an additional wage** on top of government-provided subsidies

*Kurzarbeit has managed to keep the rise in German unemployment at 0.8% so far (rose to 5.8% in April). Other EU countries have enacted similar programs to combat the issue.*



# Uncertain employment landscape

Long-term efforts should focus on preparing employees and employers for the Future of Work, offering financial incentives to those who invest in capital or business operations, and promoting fixed-contract employment that can equip the economy for the next phase of growth.

## LONG-TERM

Topic	Potential Activities
<p><b>Future of Work &amp; Job Reskilling</b></p>	<ul style="list-style-type: none"> <li>• Set up a Future of Work commission to bring together public, private, and social sector stakeholders to discuss how government and industry can best prepare workers for the future of employment (e.g., planning upskilling/reskilling roadmaps, establishing apprenticeships)</li> <li>• Create industry roadmaps with industry leaders to understand employment trends, skills gaps/needs, career transition journeys, workforce management and resiliency strategies, and how to successfully position companies and workers to thrive in the future</li> <li>• Launch skills-matching and digital apprenticeship programs with private sector partners to facilitate and expand job upskilling/reskilling programs to equip workers for technology-oriented jobs (e.g., computer science, data analytics, machine learning, and cybersecurity)</li> <li>• Consider developing individual “skills accounts” or credit programs, to afford residents greater opportunities of continuous learning/training</li> </ul>
<p><b>Business Recovery &amp; Investment Incentives</b></p>	<ul style="list-style-type: none"> <li>• Convene private sector stakeholders to conduct impact assessments and develop business recovery roadmaps for stimulating reinvestment, identifying areas requiring aid in order to take steps to facilitate quicker returns to operations</li> <li>• Evaluate legislation to identify business policy (e.g., investment incentives, tax deductions, clustered industry zoning, foreign capital controls) opportunities to promote capital reinvestment, worker rehiring, and a general catalyzation of business activity</li> <li>• Fund/incentivize creation of innovation hubs to bring together private sector resources and ideas to accelerate innovation and investment</li> </ul>
<p><b>Investment-Driven Fixed-Contract Employment</b></p>	<ul style="list-style-type: none"> <li>• Invest in targeted expansion of physical healthcare infrastructure: hospitals, clinics, trauma centers, and vital infrastructure for handling increased inflows of emergency patients during future health crises</li> <li>• Upgrade public infrastructure in projects that expand and repair public transit, roads/bridges, highways, railways, airports, ports, levees/dams, and civic buildings, among other critical infrastructure</li> <li>• Invest in digital infrastructure and the “green” economy, focusing on future technologies and enablers (e.g., artificial intelligence, blockchain, machine learning), broadband infrastructure (e.g., 5G), and renewable energy (e.g., hydro, biomass, wind, solar)</li> </ul>
<p><b>Unemployment Benefits</b></p>	<ul style="list-style-type: none"> <li>• Modernize unemployment insurance systems and distribution (e.g., migrate to cloud systems, expand processing capacity)</li> <li>• Consider enacting greater labor protections for full-time gig workers, self-employed individuals, independent contractors and similar classes of workers who do not receive traditional social/health benefits through employment</li> </ul>



### State of Maryland

*In 2014, the State introduced an innovative approach to reskilling through Employment Advancement Right Now (EARN) program.*

In this innovative program, the **private sector identifies workforce development opportunities for high-demand sectors**. Programs are then developed to reskill workers to fill roles in cybersecurity, manufacturing, biotech, healthcare, construction, and other industries.

Through the **850 partner firms** that have participated, more than **4,500 unemployed/underemployed workers have obtained employment**, and another **7,500 employed workers have benefited** from augmented skills.

These effects have translated to **\$18.43 in economic activity created for every \$1 invested** in the program – more than the national average of \$3.41 for similar workforce development programs.

# Low public trust (Low consumer & Investor confidence)

**45%**

*Percentage of OECD citizens who report trusting their national government (as of 2019)*

**17%**

*Percentage of Americans who report trusting the federal government*

**40**

*Point drop in the US consumer confidence index from February 2020 to July 2020 (from 132.6 to 92.6)*



## ***The Challenge***

In recent years, public trust in government has approached all-time lows – 43% of citizens in OECD countries report having trust in their government – threatening citizen responsiveness to government policies and directives and diminishing effective governance. The COVID-19 crisis has placed a spotlight on the importance of maintaining trust during public health crises to ensure civilians adhere to health guidelines that can only be effective when acted upon collectively. However, in the longer-run economic recovery, the restoration of public trust depends largely on governments' ability to promote economic engagement, openly communicate emergency plans for the current and future crises, and be more transparent and open for all.

## ***Implications***

Without consumer and investor confidence, economic recovery is sure to lag. If market suppliers cannot effectively plan for reopening or closure along government business directives, incentive to invest and expand operations will stagnate, leading to delayed reopening, continued high unemployment, and lack of capital expansion. On the consumer side, lack of sufficient confidence in government ability to protect public safety and secure economic stability will erode public re-engagement with society and the market. By equipping the general public with a reliable and coherent understanding of response and preparedness plans, assuring the public these plans can be executed, and by being more open and participatory, government authorities can assuage skepticism of economic uncertainty and help kickstart economic activity.



# Low public trust (Low consumer & Investor confidence)

Short-term efforts should focus on issuing clear and coherent government messaging to civilians and businesses, increasing testing and contact tracing capacities, and engaging in activities that will assure the public that it is safe to reengage with society so long as safety measures are adhered to.

## SHORT-TERM

Topic	Potential Activities
<p><b>Public Health Communications Signaling</b></p>	<ul style="list-style-type: none"> <li>• Communicate critical information regarding COVID-19, proper protocols, government directives, and testing sites via a multi-channel approach on a constant basis; place public health, medical, and other scientific experts front-and-center of the public communications campaign</li> <li>• Issue clear and coherent public health guidance across government on latest information and how to access more information/resources; ensure communications accessibility to vulnerable populations (e.g., low-income, homeless, elderly, disabled, non-native language speakers)</li> <li>• Take measures to make public health and viral prevention a priority by making hygienic and disinfectant products readily available in public spaces, commissioning more frequent cleaning of public areas, making public transit social distance friendly, and issuing constant messaging</li> <li>• Make public health and COVID-19 information/resources available online; consider opening COVID-19 data for transparency and trust-building by publishing detailed real-time information surrounding geographic location of cases</li> </ul>
<p><b>Testing &amp; Contact Tracing Ramp-Up</b></p>	<ul style="list-style-type: none"> <li>• Develop and coordinate a robust testing and test results reporting process that promotes mass testing, reports and identifies positive test results, and is highly accessible to all residents, including vulnerable populations</li> <li>• Work with manufacturers and suppliers to guarantee a robust supply chain that has the capacity to continuously supply test kits and other essential materials (e.g., testing materials, personal protective equipment) and meet testing minimum guidelines for economic reopening</li> <li>• Consider working with private sector to quickly develop and deploy contact tracing systems to be used by public health authorities to monitor and track outbreaks and by individual citizens to learn of potential viral exposure</li> <li>• Implement comprehensive cybersecurity measures to protect digital privacy (e.g., clearly communicate purpose of data collection to public, limit government personal data use, specify direct accountability and oversight) when using contact tracing platforms</li> </ul>
<p><b>Business Reopening Coordination</b></p>	<ul style="list-style-type: none"> <li>• Collaborate closely with the private sector on risk-based approaches to economic reopening, creating reopening blueprints and reclosure contingency blueprints based on sector, type of business, physical infrastructure, and other critical risk factors</li> <li>• Publish and enforce guidelines on business reopening protocols (e.g., staggering hours, capping occupancies, requiring masks for entry, virus-proofing store arrangements, flexible work hours, instituting temperature checks / rapid tests)</li> <li>• Consider standing up programs to help connect small businesses with members of the private sector to obtain mentorship and leading practice guidance on securing resources, long-term financial planning, recovery strategy, and more</li> </ul>



## State of New South Wales

*The State of New South Wales (NSW) in Australia has taken major measures to combat COVID-19 and its economic effects, several of which directly aim to elevate public trust and sentiment regarding societal re-engagement.*

The State's COVID-19 **emergency response took a transparent and participatory approach through open data**, allowing it to collaborate across agencies on its digital communications and data-sharing strategy. In doing so, it **integrated the most up-to-date information** regarding case statistics, confirmed case heat maps, testing locations, government guidelines, and other information regarding schools, businesses, economic aid, and more.

By making data transparent and readily available, and issuing clear, coherent guidelines across government, **NSW raised citizen trust and gained buy-in to mandates, helping the State lower new confirmed cases.**



# Low public trust (Low consumer & Investor confidence)

Long-term efforts should focus on issuing clear communications on emergency preparedness, ensuring emergency response plans are created jointly with civil society, and making government more participatory, transparent, and citizen-centric.

## LONG-TERM

Topic	Potential Activities
<p><b>Public Health Response Planning &amp; Preparedness Communications</b></p>	<ul style="list-style-type: none"> <li>• Develop public health emergency plans in partnership with private/public sector and healthcare providers, noting specific protocols, accountability, and communications strategies to be deployed based on defined emergency levels</li> <li>• Develop public health emergency plans geared towards educating the general public, to be disseminated through employers, schools, civic establishments, and public announcements that increase knowledge on crises protocols and the importance of directive adherence</li> <li>• Invest in public health infrastructure and resources, emphasizing the importance of infectious disease preventative measures and everyday hygienic practices that residents can engage in to minimize the risk of future contagion</li> <li>• Launch targeted public relations campaigns that clearly communicate public safety measures taken to instill confidence in consumers/investors about reengaging with the jurisdiction (e.g., “open for business” messaging)</li> </ul>
<p><b>Private Sector Collaboration</b></p>	<ul style="list-style-type: none"> <li>• Gather input and buy-in among private sector in the creation of future emergency response and supply chain contingency plans, creating industry working groups to navigate the complexities and challenges of each unique sector</li> <li>• Partner with private/social sector to create economic redevelopment plans aimed at capturing land value and making spaces more livable, including reinvesting in underserved communities, addressing deficiencies in government services, and boosting public infrastructure</li> </ul>
<p><b>Open &amp; Participatory Government</b></p>	<ul style="list-style-type: none"> <li>• Launch an open government campaign to make public data, expenditures, and decisions more transparent, and to foster a greater sense of accountability and resident involvement in government; refer to best practices in open data</li> <li>• Consider digitalizing government services across the board (e.g., business registrations/licenses, government identification cards) to make government more efficient, accessible, and user-friendly</li> <li>• Create innovative avenues for sourcing and responding to resident feedback on how to improve government services</li> </ul>



### City of New York

*The September 11 attacks led to tremendous loss of life and economic vitality within the city, leading to ripple effects in the subsequent years and an estimated \$83B in economic losses – a net impact of \$16B after insurance and aid. Additionally, public trust significantly decreased, leading to drops in tourism and retail revenues.*

The NYC Partnership and Chamber of Commerce outlined activities for reviving consumer/investor confidence:

- **Create long-term economic plans** to recraft Lower Manhattan, develop a 2<sup>nd</sup> business district, upgrade infrastructure, revitalize the waterfront, and invest in Queens and Brooklyn
- **Update emergency preparedness/response plans** for security and health agency alignment
- **Spearhead support for small businesses** needing flexible short-term capital or storefront relocation
- **Enact publicity campaign** framing NYC as “open for business” and safe

# Small business recovery

**1.6B**

*Number of informal sector workers (nearly half of global workforce), out of 2B informal sector workers total, affected globally by COVID-19*

**56.9%**

*Percent of US small businesses whose business revenue has decreased by more than 75% since March 2020*

**7.5M**

*Number of US small businesses (34.1% in US) at risk of closing permanently if the current disruption rate lasts for 3-5 months*



## ***The Challenge***

With COVID-19 inducing stay-at-home orders and shuttering economies, small businesses – the lifeblood of many economies’ productivity and workforces – have been impacted particularly heavily since they often do not have the same cash reserves or financial capacity as larger corporations to stay afloat for extended periods of time. In developing countries, the inability for microenterprises and family-run businesses to remain operational has disproportionately created challenges for workers who operate in the informal economy, depleting any form of income for those already on the brink of poverty. Continued economic disruption will have a devastating impact on shop owners and workers alike, as many small businesses are expected to close permanently.

## ***Implications***

The implications of the pandemic shutdown have been consequential, negatively impacting billions of global workers who work in small businesses or the informal sector, and the 92% of US small businesses that employ nearly half the American workforce. Mass unemployment threatens to cause poverty, food insecurity, homelessness, and other negative social outcomes among the people who depend on small businesses for their employment and livelihoods. Governments must respond immediately to address the short and long-term needs of small businesses and local entrepreneurs with regards to cash flow, payment deferrals, and other liquidity pressures to ensure that these important economic bases can survive the economic tumult and slowly recover.

# Small business recovery

Short-term efforts should focus on mitigating small business cash flow challenges through direct and indirect funding relief mechanisms, and operational business support.



## SHORT-TERM

Topic	Potential Activities
<b>Direct Relief Funding Provision</b>	<ul style="list-style-type: none"> <li>• Provide emergency relief funding that can be used for payroll, inventory, or other operational costs; consider suspending or delaying small business payment obligations on taxes, rent, utilities, licensing, and other fixed-cost overhead</li> <li>• Consider basing relief funding conditions on the diverse factors that affect small businesses, including: type of business, cost structure composition, local market, number of employees, and other risk factors such as minority-ownership</li> <li>• Consider directly subsidizing worker payrolls to keep employees on work payrolls and ease cash flow strain on businesses; consider alternatively providing employee retention tax credits and subsidies to small businesses to maintain employees on payroll</li> </ul>
<b>Indirect Relief Support</b>	<ul style="list-style-type: none"> <li>• Develop and coordinate the launch of a small business capital access program, in partnership with banks, financial lenders, and microfinance entities, to minimize risk among lenders and create new capital outlets for small businesses looking for immediate funds</li> <li>• Partner with private/social sector to launch fundraisers and donation campaigns (as appropriate) to benefit small business owners and workers</li> <li>• Consider planning sales tax holidays for small businesses to incentivize consumers to spend at local establishments</li> </ul>
<b>Operational Business Support</b>	<ul style="list-style-type: none"> <li>• Coordinate with small business associations to develop and implement risk-based approaches to reopening based on geographic location, company size, company type, and tactical protocols (e.g., mask usage, occupancy limits, social distancing) to keep employees/customers safe</li> <li>• Provide a platform for large firms to mentor small businesses and provide strategic advice around resource procurement, business/operational strategy, digital/eCommerce expertise, and other best practices to help small businesses rebound</li> <li>• Work with the private sector to subsidize small business operations repurposing (e.g., producing medical gowns, delivering essential supplies) to maintain payrolls and combat COVID-19</li> </ul>



## State of Massachusetts

*In 1994, Massachusetts developed a Capital Access Program (CAP) to provide additional funding mechanisms for local entrepreneurs (<200 employees) and expand lending flexibility among banks.*

The program works by **creating a loan loss reserve fund from a lender and borrower contribution that is matched by a public entity contribution.** Lenders can claim funds from this ledger in the event of CAP loan losses or defaults.

Through CAP, the participation of **80+ banks** has allowed small businesses greater capital options in operational investment and has:

- **Issued 6,100+ loans** to new small business clients
- **Leveraged \$15.5M+ in state funding** to issue \$390M+ in loans
- **Created 34,000+ jobs**
- **Generated \$100M+** in payroll taxes for the Commonwealth



# Small business recovery

Long-term efforts should focus on making small businesses more economically resilient, enabling digitalization and technology adoption, and formalizing business operations for actors not officially involved in the economic system.

## LONG-TERM

Topic	Potential Activities
<p><b>Economic Resiliency Efforts</b></p>	<ul style="list-style-type: none"> <li>• Launch taskforce to conduct recurrent impact assessments and to engage with local entrepreneurs in group roundtables, to continually gauge the health of the small business ecosystem and measure overall recovery, using input to craft policy affecting small businesses</li> <li>• Partner with local business and trade associations to provide education and training programs for small businesses on disaster recovery, operations continuity planning, and future financial resiliency</li> <li>• Identify opportunities for promulgating small business recovery and pull necessary financial levers to expand growth opportunities (e.g., additional stimulus funding, added loan forgiveness measures, tax exemptions, investment credits)</li> <li>• Spearhead program to assess health of, and provide resources for, minority-owned businesses that were disproportionately negatively affected by the economic shutdown</li> </ul>
<p><b>Technology-Driven Economic Enablement</b></p>	<ul style="list-style-type: none"> <li>• Conduct assessment to identify gaps in small business connectivity (e.g., small businesses in rural or informal areas) to broadband networks and develop strategy for addressing these gaps</li> <li>• Partner with telecom/broadband providers to establish hotspots in rural areas and informal areas/markets to facilitate the transition to digital payments and eCommerce among actors currently lacking connectivity</li> <li>• Partner with tech companies to provide digital expertise and eCommerce assistance for small businesses that wish to transition to a multi-channel operations approach but lack the relevant expertise; subsidize “shared services” start-ups to serve multiple small businesses</li> <li>• Assess viability of regulatory frameworks that expand microfinancing options and allow for branchless banking to facilitate easier and more reliable access to financing for small businesses and those who lack access to physical banking infrastructure/services</li> </ul>
<p><b>Informal Sector Formalization</b></p>	<ul style="list-style-type: none"> <li>• Work with informal worker associations and local trade unions to build-out specialized formalization roadmaps for incorporating businesses and workers under societal protections and helping informal sector actors operate more efficiently and productively</li> <li>• Expand business/economic rights and legal protections for members of the informal sector to have greater knowledge of and ability to exercise property rights, labor rights, justice system functionalities, and financial market capital</li> <li>• Simplify bureaucratic registration processes/fees and educate informal actors on the benefits of business formalization and how they outweigh the licensing, tax, regulatory, and other administrative costs of formalizing</li> </ul>

### Bangladesh

*In 2011, under the auspices of the Bangladesh Bank, a small and medium-enterprise-focused private bank, and an impact investment firm, launched a mobile payment platform called bKash.*

By issuing mobile financial service licenses, the **government has increased formal banking service access for microentrepreneurs and low-income users** who can more easily send/receive money, pay suppliers and worker wages, and pay small business loans while worrying less about the security risks of holding physical cash.

Roughly half of the country’s 160M people are unbanked, however the platform has grown rapidly:

- **30M+ users** across the country engage in **5M+ transactions per day**
- **180,000+ deposit handlers**, or ‘human ATMs,’ convert cash into electronic money for users
- **Nearly 20 formal banking partners** handle bKash funds on the back-end

# Broadband/5G capabilities



## The Challenge

With global broadband networks being strained by the sudden move to virtual work, learning, and medicine, the need for accessible and affordable connectivity across urban and rural populations has become increasingly evident. The ITU/UNESCO Broadband Commission for Sustainable Development estimates that 49% of the world’s population does not have access to Internet connectivity. In today’s world, this lack of access translates to foregone opportunities in education, health, and social outcomes. Even in developed countries like the United States, upwards of 42M people lack reliable, high-speed broadband, implying less access to markets, jobs, healthcare, and information.

*Increase in web traffic and decrease in download speeds from mid-February to late-March*

*Increase in web traffic*

*Decrease in download speeds*

**109.3%**

*Italy*

**35.4%**

**78.6%**

*UK*

**30.3%**

**44.6%**

*USA – New York & New Jersey*

**5.5%**

**42M**

*Estimated number of Americans (~14%) that lack access to 25/3 broadband*

## Implications

Without reliable broadband, or the devices that enable connectivity, populations can fall behind in schooling, health outcomes, and work, exacerbating inequities among society’s vulnerable and disenfranchised low-income and rural populations. Lack of action around digitally connecting entire populations risks alienating already-disconnected groups and bringing down aggregate economic potential. Furthermore, forward-thinking on future enablers such as 5G, promises to unlock economic potential in nearly every sector across society. Its potential to spur economic development and advancements in agriculture, education, healthcare, workforce development, infrastructure, among others, cannot be ignored.



# Broadband/5G capabilities

Short-term efforts should focus on quickly transitioning populations to remote activities and begin laying the groundwork for broadband/5G proliferation.

## SHORT-TERM

Topic	Potential Activities
<b>Rapid Societal Digital Transition</b>	<ul style="list-style-type: none"> <li>Assist students, patients, and workers lacking broadband access in the transition to distance learning, telehealth, and virtual work, by equipping them with baseline tools, software, and broadband connectivity (e.g., distribute equipment, place temporary hotspots on buildings)</li> <li>Partner with the private/social sector to identify innovative ways to expand broadband access in a short period of time and negotiate with providers to guarantee continuity of service, freely or at a discount, for financially-distressed residents for the crisis duration</li> <li>Work to identify how government can quickly and reliably transition staff and services to telework and digital services while maintaining data privacy and cybersecurity protocols</li> </ul>
<b>Broadband Legislation Enaction</b>	<ul style="list-style-type: none"> <li>Designate broadband access as an essential service due to its influence on economic, social, educational, and health outcomes, to set a development agenda that emphasizes its importance to social outcomes</li> <li>Formalize a definition on what constitutes broadband access (e.g., upload/download speeds) to guide policy and investments in order to lay the groundwork for long-term policy enactments</li> <li>Establish clear rules around what authority broadband/5G players (e.g., Internet service providers, government agencies, community groups) have in establishing broadband networks and accompanying financial incentives</li> <li>Review potential legislative barriers to construction of broadband, fiber optic, and 5G networks, including licensing, permitting, franchising, right-of-way regulations, and spectrum management</li> </ul>
<b>Broadband Mapping Improvement</b>	<ul style="list-style-type: none"> <li>Review and update broadband mapping mechanisms to ensure that identified coverage gaps fully capture the current state</li> <li>Consider partnering with private sector to leverage expertise and resources to more accurately map and monitor connectivity gaps to guide immediate measures to address broadband coverage, as well as to guide funding decisions and investment coming out of the crisis</li> </ul>



## Kenya

*Kenya, a country of over 50M people, has significant gaps in nationwide broadband coverage: 56% of urban and 83% of rural residents lack connectivity. This lack of reliable connectivity can cripple health crisis response efforts by preventing communication between health facilities, tracing of viral spread, and citizen access to health information.*

Since 2018, Kenya has been working with private sector partners to pilot and launch a network of 4G-transmitting air balloons which promise **connectivity to roughly 25M people**. In light of COVID-19, the federal government has expedited regulatory approvals to launch the network so that rural residents and health workers can be better equipped to manage the virus.

The balloon network launched in July to **begin addressing the immediate connectivity barrier**, but longer-term solutions will need to be financed.



# Broadband/5G capabilities

Long-term efforts should focus on promoting universal broadband via diverse funding mechanisms, implementing a state-of-the-art 5G network that expands government and industry productivity capabilities through next-generation connectivity technology, and digitalizing government services on a large-scale.

## LONG-TERM

Topic	Potential Activities
<b>Broadband &amp; 5G Enablement</b>	<ul style="list-style-type: none"> <li>Establish a Broadband Taskforce composed of government legislators, agencies, and private/social sector leaders to set a long-term vision and action plan for the establishment of fast, reliable, and affordable broadband across the jurisdiction</li> <li>Design jurisdiction-wide strategy for the transition to 5G connectivity, taking into account its effects on economic actors, public sector actors, individual households, and the provision of government services</li> <li>Develop sector-specific blueprints and action plans in collaboration with the private sector on how 5G small cell deployment can increase economic value by introducing/leveraging Internet of Things and smart technologies, among others</li> <li>Explore other solutions to hasten 5G piloting and expansion, including expediting license issuances and demarcating 5G testbeds</li> </ul>
<b>Broadband Financing</b>	<ul style="list-style-type: none"> <li>Consider designating a formal Broadband Fund and establish other finance mechanism frameworks (e.g., special funds, universal service fund, other identified government revenue streams) to allocate financing to proposals that extend broadband to underserved areas</li> <li>Consider structuring funding around specified types of projects: unserved areas with no network providers, underserved areas with few network providers, last-mile, middle-mile, or matched-fund projects</li> <li>Encourage broadband investment via non-direct funding mechanisms, including: tax deductions/credits for broadband equipment purchases, tax incentives for broadband deployment in underserved areas, property tax exemptions on broadband infrastructure, government bonds for publicly-owned broadband infrastructure, and shared private-public funding schemes</li> </ul>
<b>Large-Scale Government Digitalization</b>	<ul style="list-style-type: none"> <li>Explore the expansion of e-government initiatives as a permanent fixture for making public services more efficient, accessible, and user-friendly (e.g., cloud infrastructure, online tracking)</li> <li>Equip government workers with organizational playbooks for going virtual (e.g., constructing digital infrastructure, equipping workers with appropriate hardware/software tools) and rehearse virtual work scenarios</li> <li>Develop, implement, and maintain robust cybersecurity frameworks behind digital services to protect data privacy</li> </ul>



## South Korea

*In 2008, South Korea set out to become a leader in 5G connectivity. In April 2019, after years of planning and coordination, the country launched the world's first nationwide 5G network.*

The network, launched by the Ministry of Science and ICT in partnership with the three largest telecom providers, has gained **over 5M users across 85 cities.**

The **federal government rallied the many public and private stakeholders** around the idea of inclusive and globalized economic growth by:

- **Setting up standing committees** to facilitate public-private dialogue
- **Focusing on 5 “core services”** including smart cities, smart manufacturing, and telehealth
- **Emphasizing 10 “core industries”** including virtual/augmented reality, robots, drones, and edge computing
- **Incentivizing investment** by: providing tax incentives, establishing testbeds, and supporting SMEs

# Supply chain disturbance



**\$26.6T**

*Expected economic cost (~5.3% of global GDP) of COVID-19 to the global economy over the next 5 years (potential cost range of \$3.3T to \$82T)*

**30-40%**

*Expected fall in Foreign Direct Investments globally between 2020-2021*

**1.37M**

*Manufacturing jobs lost in the US between February 2020 and April 2020*

## ***The Challenge***

The COVID-19 pandemic has created great strain on the global supply chain, as an increasing number of workers across the supply chain fall ill from the virus and as economic shutdown hampers production at all levels. Even as certain sectors carry on with operations, raw materials and resources typically found at the top of many supply chains are scarce given the dramatic decrease in industrial operations – for example, the initial Wuhan shutdown directly affected supply chains of at least 200 of the Fortune 500 companies. Combined with a lack of supply chain diversification of critical goods, such unprecedented strains in supply have shaken the global economy and have forced governments and businesses to scramble for resources to allow operations to continue throughout the pandemic.

## ***Implications***

Due to global shortages of labor and materials, suppliers are struggling to stay viable, with some completely shutting down, potentially causing irreparable damage to the global supply chains of various industries. More importantly, these strains on the supply chain have also negatively impacted the manufacturing and distribution of critical resources to fight the pandemic, such as pharmaceutical products and personal protective equipment. In the early months of the crisis, consumer panic also led to a sharp uptick in demand of normally available goods (e.g., cleaning supplies, food staples), which further contributed to widespread scarcity and heightened consumer anxiety. Governments and business alike are now taking a closer look at their supply chains in order to identify where greatest risk is held and how supply chains can be adapted to the “new normal.”



# Supply chain disturbance

Short-term efforts should focus on providing immediately-accessible funds to highly impacted industries, utilizing advanced information systems to better identify supply chain pain points, and promoting the repurposing of domestic manufacturing infrastructure.

## SHORT-TERM

Topic	Potential Activities
<b>Immediate Financial Assistance Measures</b>	<ul style="list-style-type: none"> <li>Ease fiscal and situational requirements for business lending through public banking institutions to boost liquidity and maintain financial viability of essential supply chains impacted (e.g., enact measures that streamline working capital accessibility and maintain vital cash-flow)</li> <li>Employ monetary tools to maintain private bank liquidity as interest rates are reduced on loans to businesses continuing operations during crises and take steps to guarantee diversified borrowing solutions to maintain fiscal solvency for essential suppliers</li> </ul>
<b>Analytics-Driven Supply Chain Monitoring</b>	<ul style="list-style-type: none"> <li>Adopt specialized, data-driven supply chain management tools that allow for public tracking of resources identified as critical to emergency supply chains (e.g., cities working with hospitals to track procurement/use of personal protective equipment)</li> <li>Facilitate the integrated sharing of digital supply chain information across and within levels of government to better share data across public sector and emergency response actors (e.g., "Safe Hands Kenya" leveraged IoT-enabled order/replenishment system to distribute sanitation products at centers and shops)</li> <li>Utilize machine learning and remote sensing GIS tools to map at-risk geographic clusters and populations in need of resources to prioritize distribution chains and expedite resource allocation</li> <li>Assemble a consortium of public/private actors to create a mechanism for sharing resources, data, and expertise for actively monitoring supply chain needs and identifying/addressing risks</li> </ul>
<b>Domestic Manufacturing Repurposing</b>	<ul style="list-style-type: none"> <li>Consider prioritizing government purchase orders among local producers (where possible) to manufacture critical goods and materials to reduce shipping/procurement costs, streamline supply chain movement, and stimulate local economies</li> <li>Consider assessing regulations surrounding anti-trust and the coordination of private industry action to more freely and swiftly produce and deploy emergency resources/goods (e.g., anti-trust Immunity as laid out in the US Defense Production Act of 1950) (US)</li> <li>Consider partnering with supply chain players to minimize hoarding of raw materials deemed critical during emergencies and developing methods of mitigating the practice</li> </ul>



## Liberia

*During the 2014 Ebola Crisis, the Ministry of Health and Social Welfare, with the Academic Consortium Combating Ebola in Liberia (ACCEL), a group of US universities and hospitals, assessed the country's supply chain of personal protective equipment and medicine and provided a plan for boosting human and supply resources.*

The rapid response supply chain plan:

- Partnered with an NGO** to secure cargo space for relief resources
- Worked with UN Logistics Cluster** to facilitate supply distribution across Liberian hospital network
- Sourced materials** from domestic companies to reduce costs and streamline supply chain movement

**\$1.8M in supplies procured through ACCEL** allowed Liberian healthcare workers to properly train and also **supplied 25 government hospitals** with personal protective and sanitation equipment for **three-months of continued healthcare operations.**



# Supply chain disturbance

Long-term efforts should focus on creating a robust supply chain contingency plan to account for potential emergency scenarios, incentivizing the creation of digital supply chain innovation to predict and quickly triage supply chain disturbances, and developing locally-sourced supply chains.

## LONG-TERM

Topic	Potential Activities
<b>Emergency Supply Chain Planning</b>	<ul style="list-style-type: none"> <li>Assess existing emergency planning policies and infrastructure to better understand crisis readiness (e.g., widespread inventory of relevant supplies/infrastructure/protocols) and develop/implement crisis response training and playbooks for public entities and healthcare networks</li> <li>Incentivize private sector actors to create supply chain contingency plans and to diversify supply chain networks to prioritize resiliency in lieu of traditional cost-savings, to increase economic supply chain resiliency</li> <li>Allocate funding for, and define a process for the release of emergency funding, to address emergency expenses related to supply chain and inventory management in crisis time</li> </ul>
<b>Digital &amp; Flexible Supply Chain Innovation</b>	<ul style="list-style-type: none"> <li>Spearhead an innovation/analytics committee responsible for leveraging predictive analytics, big data, blockchain, and Internet of Things technologies to better predict and inform of potential supply chain disruptions in public infrastructure or industries deemed critical</li> <li>Smooth private sector transition from traditional to future of manufacturing digital supply chain networks that incorporate next-generation procurement technologies such as cloud computing, artificial intelligence, 3D printing, robotics, and digital twins for crisis scenario planning</li> <li>Foster partnerships with private sector supply chain players to leverage during crises for the production and procurement of vital goods</li> </ul>
<b>Locally-Oriented Supply Chain</b>	<ul style="list-style-type: none"> <li>Develop a long-term strategy for supply chain resiliency that allows for market players to harness the advantages of a globalized supply network to identify comparative advantage and foster the development of local product value chains</li> <li>Incentivize the clustering/development of specialized, economic zones to fuel capital expansion, operations investment, and grow the presence and resilience of locally-based value chains</li> </ul>
<b>Necessary Healthcare Materials Supply Monitoring</b>	<ul style="list-style-type: none"> <li>Implement data-driven supply chain diagnostic tool / digital twin to better allocate and predict healthcare resource requirements and scenario plan across healthcare networks</li> <li>Consider requiring government agencies, healthcare facilities, and military bases to carry excess capacity medical equipment for times of crisis; incentivize companies of these essential materials to maintain a portion of these supply chains domestically</li> </ul>



### Pakistan

*In 2005, after a major earthquake, Pakistan worked with the World Health Organization (WHO) to develop a service-driven pharmaceutical management software to allow the government to optimize medical supply chains during disasters.*

The Pharmaceutical Information Management System (PIMS) was created as a result and was used to:

- **Centralize data entry** for all users (hospitals/doctors/government)
- **Define stock basket** and customized medicine kits for distribution
- **Identify displaced populations** most in need of medical resources
- **Virtually monitor** the distribution of medicines in real-time

During the 2010 Indus Valley floods, **PIMS decreased potential medical commodity stock-outs by 85%** at WHO stores and improved policy decision-making potential by providing a single source of truth on medical logistics.

# Public education disruption

**1.06B**

*Number of displaced learners worldwide (61% of global learner population) due to school closures (as of August 4<sup>th</sup>, 2020)*

**21.8%**

*Estimated percent of the 55M US students relegated to distance learning who lack broadband access*

**214%**

*Growth in accredited online university course enrollment from 2015-2019 (35M to 110M)*

## ***The Challenge***

The pandemic shutdown has led to countrywide school closures across 150+ countries as a result of government efforts to curb the spread of the virus, forcing upwards of 1.6B students, at the peak of disruption in early April, to adapt to distance learning for the foreseeable future. This has put tremendous pressure on school systems to hastily move classes to a digital setting, on teachers to adapt curriculum and teaching styles, and on parents to oversee and their children's online learning. However for millions of students, switching to distance learning is simply not possible. Lack of access to broadband and Internet-compatible devices for low-income students and inadequate digital curricula for disabled and special education students threaten to exacerbate the educational outcome gap.

## ***Implications***

Widespread school closures and forced distance learning threaten to exacerbate achievement disparities between students with access to distance learning-enabling technologies and those without them – a proportion that leans more towards the latter on a global level. Additionally, school closures threaten to set back years of social, economic, and educational progress made by children worldwide the longer students lack access to the appropriate learning resources. Millions of children affected by COVID-19 school closures will never return to the classroom. Looking ahead, education leaders should focus on addressing inequities made stark by distance learning, and how public schooling, from primary to higher education, can adapt to be more accessible, equitable, and flexible for every student.



# Public education disruption

Short-term efforts should focus on facilitating the transition to distance learning for all, maintaining social inequities from exacerbating educational outcome gaps among disadvantaged students, and on adjusting school policies as necessary to adapt to major schooling disruptions.

## SHORT-TERM

Topic	Potential Activities
<p><b>Distance Schooling Transition</b></p>	<ul style="list-style-type: none"> <li>Assist students and teachers with the transition to distance learning by equipping lower-income households and students with disabilities with a baseline set of tools, software, and broadband connectivity (e.g., distribute equipment/Wi-Fi devices, establish hotspots in neighborhoods)</li> <li>Adjust specialized curricula (e.g., visual/audio-impairment, special education) for the virtual environment and issue clear guidelines on where/how to access school resources (e.g., learning tools/modules, teacher resources), and how tools/platforms can be leveraged</li> <li>Consider cooperating with other school districts or the private sector to facilitate distance learning courses/resources, share costs with limited resources, and optimize student reach (e.g., partner with online learning platforms, broadcast curriculum on local television stations)</li> <li>Devise and implement plans for disadvantaged students to continue receiving access to vital resources during school closures (e.g., maintain free/discounted meal program delivery/servicing, make telehealth and mental health resources accessible)</li> </ul>
<p><b>Relief Funding Allocations</b></p>	<ul style="list-style-type: none"> <li>Designate a committee to oversee data-driven strategy and disbursement of federal funds for districts and schools to maximize funding allocations and to ensure equitable fund disbursement</li> <li>Allocate relief funding to schools and school districts based on educational risk factors such as low-income/homelessness, visual/audio-impairment, special education, rural identification, student-teacher ratios, and school performance, among other factors</li> </ul>
<p><b>Education/School Policy Adjustments</b></p>	<ul style="list-style-type: none"> <li>Open dialogue across schools and district lines to share best practices in teaching approaches to allow for sharing of learnings, raising of issues, and visibility into successful policies being put in place</li> <li>Reassess policies surrounding academic performance, standardized testing, and graduation requirements to account for school closure disruptions and their disproportionately negative impact on disadvantaged student populations</li> <li>Consider reassessing admissions criteria/requirements for incoming college first-year students / secondary school applicants</li> </ul>
<p><b>School Reopening Planning</b></p>	<ul style="list-style-type: none"> <li>Plan risk-based phased school reopening, taking into consideration: term schedule (e.g., term duration, school day length), geographic location, school size/demographics, and operational protocols (e.g., mask usage, staggered class schedules, alternating in-person/virtual attendance, desk separation, social distancing)</li> <li>Strategize recovery plans for schools and districts to assess and address enlarged educational gaps as a result of lost schooling (e.g., launching additional virtual or in-person programming, adding schooldays to the following school terms)</li> </ul>



### State of California

*Beginning March 16<sup>th</sup>, 5.7M K-12 (95%) public school students began distance learning due to school closures.*

The “homework gap” among student cohorts was evident at home:

- 20% of students** lack access to high-speed Internet or computing devices
- 50% of low-income families** and **42% of families of color** do not have devices required for virtual learning

The State has taken steps to address the broadband gap, including:

- Secured donations from corporations, entrepreneurs, and philanthropists** to provide Internet and connected devices to hundreds of thousands of students
- Established donation fund and reconfigured utilities funds** to subsidize broadband for districts, focusing on low-income and rural
- Partnered with City of Sacramento** to outfit transit vehicles as ‘super hotspots’ for nearby communities



# Public education disruption

Long-term efforts should focus on planning for virtual schooling scenarios, addressing student inequities, adapting to evolving higher education approaches, and fostering a continuous learning model.

## LONG-TERM

Topic	Potential Activities
Distance Learning Resiliency Planning	<ul style="list-style-type: none"> <li>• Create action plans in partnership with districts, universities, education leaders, and private/social sector to prepare for distance learning scenarios, considering needs of diverse student cohorts (e.g., low-income/homeless, visually/audio-impaired, special education, and rural)</li> <li>• Create and conduct virtualization-specific teacher trainings on a recurring basis to better equip teachers with virtual classroom, grading, conduct, and school policy knowledge, as well as to train on best practices in making virtual learning an engaging and enriching experience</li> <li>• Require distance learning exercises throughout the school year to keep students and teachers prepared for virtualization scenarios</li> </ul>
Student Inequity Addressal	<ul style="list-style-type: none"> <li>• Develop long-term plans and benchmarks for making online/technology resource access more equitable for at-risk and disadvantaged students in order to close the “homework gap”</li> <li>• Assess viability of funding increases or partnerships with private/social sector to address the connectivity divide among underprivileged students (e.g., corporate donations, drive-up school Wi-Fi hotspots, neighborhood broadband access expansion)</li> </ul>
Higher Education Evolution	<ul style="list-style-type: none"> <li>• Consider establishing a committee to understand how demand for in-person public university experiences will change due to distance learning, and how public universities can adapt to meet this evolution in the long-term</li> <li>• Assess the viability of making a greater portion of public university coursework more online-based (e.g., Massive Open Online Course model) while maintaining accreditation, to expand access of higher education resources to meet the needs and desires of different students</li> <li>• Foster partnerships among other universities and integrate Massive Open Online Course (MOOC) offerings into local university curricula, so that local students can be conferred accredited university degrees in addition to the supplementary MOOC credits from virtual coursework</li> <li>• Consider partnering with the private sector to develop university curricula, placing importance on practical and applicable skills necessary for succeeding in the 21<sup>st</sup> Century workforce</li> </ul>
Lifelong Learning Programs	<ul style="list-style-type: none"> <li>• Launch skills-matching programs and engage private sector partners, to facilitate and expand job upskilling/reskilling programs, to equip workers for digital and technology-oriented jobs</li> <li>• Develop and spearhead digital apprenticeship programs through public/private partnerships to increase career opportunities in computer science, data analytics, machine learning, information technology, and cybersecurity</li> <li>• Consider developing individual “skills accounts” or credit programs, to afford residents greater opportunities of continuous learning/training</li> </ul>



## Malaysia

*In its Education Blueprint 2015-2025, Malaysia emphasized the need to integrate learning technologies in its higher education system in order to increase access and improve outcomes. In 2015, it became the first country to officially adopt Massive Open Online Courses (MOOCs) at public universities.*

Malaysia launched this “**Globalised Online Learning**” initiative in tandem with its broader national strategy of skilling its workforce and boosting competitiveness in the global market for the 4<sup>th</sup> Industrial Revolution.

The country aims to move up to **70% of university programs to a blended-learning platform** that emphasizes project and activity-centric classes.

**All 20 of Malaysia’s public universities, as well as polytechnic, community, and private universities offer MOOCs**, and 760,000 learners have enrolled in courses as of September 2018.

Sources: [Microsoft](#), [New Straits Times](#), [OpenGov Asia](#), [Technologist](#), [The Star](#)

# Public transit insolvency



## Public transit ridership decline across the world

<b>93%</b>	London, UK	<b>75%</b>	Sydney, Australia
<b>88%</b>	Lima, Peru	<b>64%</b>	Buenos Aires, Argentina
<b>87%</b>	New York City, USA	<b>50%</b>	Mexico City, Mexico
<b>86%</b>	Milan/Lombardy, Italy	<b>50%</b>	Istanbul, Turkey
<b>84%</b>	Madrid, Spain	<b>40%</b>	Seoul, South Korea

**\$23.8 billion**

Nationwide public transit budget shortfall through 2021 even after CARES Act funding

## The Challenge

Government-imposed shutdowns and travel restrictions, combined with anxiety of viral exposure in public spaces, has brought public transit ridership to a halt. Metro, commuter/light rail, bus, and ferry lines have all been affected, leading to steep declines in fare collections. Combined with decreases in local tax collections, monies that normally fund the continued operation of public transit are currently strapped, leaving transit authorities with the issue of remaining financially solvent while continuing to function for the essential workers that depend on transit for getting to work.

## Implications

As the primary mode of transportation for large proportions of essential workers in the healthcare, food, and logistics spaces, keeping public transit systems running as undisrupted as possible is vital to maintaining functioning supply chains related to, and unrelated to, the direct COVID-19 response, essential service delivery, and the provision of other important government services. In addition to navigating solvency in the short-term, local authorities are being forced to plan for long-term solvency issues, since decreased public trust will slow the return to widescale public transit ridership and complicate financing for many systems.



# Public transit insolvency

Short-term efforts should focus on optimizing service as much as possible, altering public transit operations to protect workers and riders, and repurposing service to keep health systems and supply chains running for the rest of the population.

## SHORT-TERM

Topic	Potential Activities
Service Optimization	<ul style="list-style-type: none"> <li>• Work with private sector to implement artificial intelligence platform to identify opportunities for service reconfiguration and to rethink how bus/train routes can be drawn up to minimize crowd sizes, maximize transit supply/demand matching, and reduce operational costs</li> <li>• Reduce rush hour / peak service routes in non-essential areas while maintaining regular service in high-density areas and areas highly-concentrated with essential workers</li> <li>• Consider interlining routes so bus drivers take on 2+ routes of lower demand; also consider skipping certain train/bus stations to minimize number of stops and crowd sizes, and subsequently speed up commute times</li> </ul>
Public Transit Operational Alterations	<ul style="list-style-type: none"> <li>• Take measures to minimize contact between transit employees and riders, including expanding service vehicles, capping capacity, instituting back-door passenger boarding, adding operator shields, and temporarily suspending fare collection to avoid crowding by transit operators</li> <li>• Consider shortening/staggering public transit labor shifts to avoid cutting staff from payroll and to minimize risk of viral exposure</li> <li>• Install portable hygienic stations (e.g., handwashing/sanitizing stations, disinfectant spray stations, UV lights) at bus/train stations to keep passengers and workers hygienic and to try and win trust among potential riders</li> <li>• Implement stringent social distancing and personal hygiene policies to mitigate spread of viral contagion (e.g., enforce mask-wearing to ride transit, mark seats and floors for where people can safely sit/stand)</li> <li>• Issue coherent and accessible (e.g., multi-lingual, visually/audio-impaired) communications throughout public transit vehicles/stations and signage, alerting of public health risks, guidelines, and where to find more information/resources</li> </ul>
Public Transit Repurposing	<ul style="list-style-type: none"> <li>• Consider partnering with mobility companies to leverage public transit resources and private sector technologies for last-mile transit trips, or other microtransit routes, to connect health and essential workers to their jobs to keep vital services running</li> <li>• Rethink how transit vehicles can be leveraged to fight COVID-19 (e.g., creating new/expanded routes for idle vehicles to transport healthcare and essential workers, refitting vehicles as Wi-Fi “super hotspots” for underserved neighborhoods, using vehicles to deliver essential supplies)</li> </ul>



## City of Abu Dhabi

*In its fight against COVID-19, Abu Dhabi's Integrated Transport Centre (ITC) collaborated with the Department of Municipalities and Transport (DMT) and two private sector firms to create the Abu Dhabi Healthcare Link.*

The on-demand transportation system **repurposes 14-seat vans from the ITC fleet to carry healthcare workers** to medical facilities for free, as a complement to existing hospital transport infrastructure.

**Using advanced algorithms, rides are formulated** such that the maximum 6-rider occupancy is picked up and dropped off in a streamlined manner. In this way, essential health staff can get to work safely, quickly, and efficiently.

**Similar public-private partnerships to repurpose transit vehicles** for carrying essential workers have sprung up in Berlin, Tel Aviv, Los Angeles, Washington, DC, and other places.



# Public transit insolvency

Long-term efforts should focus on enhancing and promoting public transit in the public eye, utilizing digital platforms to optimize operations, and finding diverse ways to fund and improve transit systems.

## LONG-TERM

Topic	Potential Activities
Public Transit Enhancement & Promotion	<ul style="list-style-type: none"> <li>Upgrade public transit systems and stations by “virus-proofing” them to win rider trust and fitting them with user-centric technology to enhance traveler experience (e.g., e-payment systems, Wi-Fi, charging stations, sanitary stations, larger transit vehicles, upgraded ventilation)</li> <li>Consider repurposing roads to streamline public transit commutes (e.g., bus-only lanes / bus rapid transit corridors, expanded bike lanes) to nudge preference for transit over individual vehicular travel</li> <li>Consider creating zones that disincentivize individual vehicular ridership (e.g., cordon-style congestion pricing, dynamic tolling) which could also create new revenue streams for public transit funding</li> <li>Identify opportunities to bridge “first-mile” and “last-mile” transport for would-be transit riders by piloting/launching microtransit fleets (e.g., on-demand public transit) or partnering with private sector partners to close gaps in public transit coverage</li> <li>Consider negotiating with private employers to match employer-provided transit pass discounts or offer pre-tax payroll deductions on worker transit subsidies</li> <li>Implement low-fare/subsidized rider programs to aid vulnerable populations who rely heavily on transit for commuting to work and school</li> </ul>
Transit Functionality Optimization	<ul style="list-style-type: none"> <li>Consider implementing artificial intelligence-driven platforms to optimize existing transit routes/timetables and to craft microtransit routes that complement public transit use to maximize transit coverage area</li> <li>Consider upgrading signals, meters, and other hard infrastructure that support transit functionality to achieve cost-savings from less delays and maintenance; implement connected analytics solutions to monitor transit incidents and efficiently triage maintenance deployment</li> </ul>
Funding Lever Diversification	<ul style="list-style-type: none"> <li>Stand-up committee to identify federal funding options exist to boost transit investment/expansion and to oversee project grant disbursement</li> <li>Consider using stimulus relief to subsidize the initial investment hump of “greener,” low-emission technologies for transit authorities that will return savings in the long-term and decrease environmental impact of transit services</li> <li>Identify methods of diversifying and/or increasing recurrent public transit funding allocation from existing taxes or new revenue bases</li> </ul>



## City of Seattle

*Seattle, a sprawled-out urban area historically dependent on single-occupancy vehicle commuting, has increased public transit ridership from 5% to 23% from 2010-2018, while decreasing solo commuting to work from 53% to 44%. Seattle is the exception to US transit system ridership decline throughout the 2010s.*

The city and region’s successful transit strategy is driven by several factors:

- **Increased transit infrastructure investment** via balloted measures (e.g., vehicle licensing fees, sales tax increase, property tax levy)
- **Prioritized bus commutes** via bus rapid transit corridors, signal priority, queue jumps, and expanded route frequency and coverage
- **Corporate firm** subsidies of transit passes encourage ridership
- **Equitable pricing for lower-income** residents through discount program
- **Microtransit routes** to connect “first/last-mile” riders to transit

# COVID resurgence & future public health crisis planning



## ***The Challenge***

Public health experts predict COVID-19 will resurge in the September – December timeframe and will likely follow a seasonal pattern similar to the yearly influenza until a vaccine is developed and distributed in the next 1-2 years. The constant threat of disease outbreak in the short-term by COVID-19, and in the long-term by any one of a number of known or unknown diseases, combined with the economic shock of this pandemic, will push governments to more proactively think about emergency response planning, digitalizing work and government, boosting healthcare infrastructure and access, and strengthening economic resiliency.

**\$3B**

*Potential US yearly market revenue for COVID-19 vaccine by the mid 2020s, assuming 100M residents become vaccinated per year at \$30 per dose*

**\$163.4B**

*Study-projected anticipated cost of hospitalization, treatment, and medical resources if 20% of the US population becomes infected with COVID-19*

**57%**

*Percent of US workers that believe their employer is not prepared to manage the risk posed by COVID-19*

## ***Implications***

Without plans in place for handling future, unexpected public health crises, governments imperil social and health outcomes of populations and risk further exacerbating existing socioeconomic divides. By putting in place the proper organizational structures and procedures to tackle public health crises, the government can promote improved health outcomes, minimize unnecessary spend, quell market uncertainty, and win citizen trust and future compliance in measures enacted by government to protect the public interest as they pertain to public health.



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Short-term efforts should focus on aligning on data management/sharing standards and practices, quickly expanding healthcare/testing capacity, monitoring the spread of the virus using digital tools, and clearly communicating with, and educating the public about, COVID-19 and how to appropriately combat it.

## SHORT-TERM

Topic	Potential Activities
<b>Data Management &amp; Sharing</b>	<ul style="list-style-type: none"> <li>Assess and adjust test reporting processes among relevant ecosystem actors (e.g., testing sites/labs, local/state/federal health departments and other government actors) to accurately capture reported cases and minimize inefficiencies in data capture</li> <li>Implement artificial intelligence solution to ingest vast quantities of government and supply chain data to quantify how, where, and when resources should be allocated to effectively deploy response personnel and supplies to jurisdictions and healthcare facilities</li> <li>Facilitate data-sharing across health agencies and first responders easier to bolster contact tracing efforts, efficiently allocate resources, and coordinate emergency responses</li> <li>Consider making data on cases publicly available while considering privacy concerns, to help residents understand disease risk in their area</li> </ul>
<b>Rapid Healthcare Capacity Expansion</b>	<ul style="list-style-type: none"> <li>Issue clear reporting guidelines on how testing sites/labs must capture test data to mitigate and quicken onboarding of essential reporting platforms to validate that results being received are not duplicated and that data captured is in compliance with government-issued standards</li> <li>Partner with commercial laboratories, academic research institutions, long-term care facilities, pharmacies, large retail stores, and medical clinics to serve as testing sites to quickly expand testing capacity</li> <li>Convert large venues into isolation hospitals and consider designating or constructing makeshift hospitals for excess patient capacity</li> <li>Consider offering incentives to manufacturers and workers to shift production to essential personal protective and other medical equipment</li> </ul>
<b>Contact Tracing Initialization</b>	<ul style="list-style-type: none"> <li>Implement contact tracing systems which notify individuals when they might have come into contact with someone who tested positive</li> <li>Establish and train a “disease detective” taskforce to work with health authorities to identify and interview individuals that may have come into contact with the infected who require self-isolation</li> </ul>
<b>Communications &amp; Education Facilitation</b>	<ul style="list-style-type: none"> <li>Collaborate across levels of government to align and communicate consistent emergency communications and social distancing guidelines</li> <li>Facilitate awareness and educational campaigns to inform the public of outbreak risks and promote adherence to appropriate guideline (e.g., communicate via SMS messaging to keep the public up-to-date)</li> </ul>
<b>Travel Modification</b>	<ul style="list-style-type: none"> <li>Enact travel restrictions from “hotspot” locations and only allow international travelers to enter via specific “gateway” cities</li> <li>Ensure all international airports are outfitted to rigorously screen and test inbound/outbound international travelers; create plan for travelers that test positive at ports of entry (e.g., mandatory at-home quarantine, transfer to isolation center)</li> </ul>



## Portugal

*Portugal has responded quickly to the threat of COVID-19, issuing a state of emergency early and taking critical steps to manage resources and monitor viral contagion.*

Governments took specific actions:

- **Lisbon Metropolitan Area (ALM)** – Implemented asset/critical resource management platform which includes a resource-sharing market among 18 municipalities
- **Municipality of Cascais** – Implemented a “so called” COVID War Room, including a monitoring tool for tracking suspected cases, test scheduling, and critical services
- **Municipality of Porto** – Developed real-time platform for community, presenting all measures related to companies in the area, as well as training webinars for technical staff



# COVID resurgence & future public health crisis planning

Long-term efforts should focus on creating structures that span public and private sectors to proactively plan emergency responses/interventions and on appropriately positioning infrastructure, technology, and supply chains for making future responses more effective.

## LONG-TERM

Topic	Potential Activities
<b>Emergency Response Planning</b>	<ul style="list-style-type: none"> <li>Stand up regular committee designated to emergency response preparedness which operates/communicates across agencies and levels of government to create and update emergency protocols, coordinate crisis interventions, and align messaging during outbreaks</li> <li>Create pandemic/epidemic-monitoring structures that evaluate developing and existing public health crises around the world and communicate warnings and valuable notifications to trigger emergency protocols</li> <li>Consider partnering with military and private sector actors to create emergency response playbooks that outline emergency supply chain plans, stockpile surplus guidelines for essential materials, testing kit production plans, and resource/kit distribution plans</li> <li>Foster partnerships across tech, life sciences, and research institutions to leverage laboratories as future testing spaces and to collaborate on research and disaster preparedness through shared resources and open dialogue</li> </ul>
<b>Healthcare Infrastructure &amp; Access</b>	<ul style="list-style-type: none"> <li>Consider investing in targeted pandemic-ready infrastructure, including the construction of isolation hospitals/centers and negative pressure rooms, which can be used for the containment of infected patients in future public health crises; can be used as clinics in non-crisis times</li> <li>Create a playbook for the conversion process of spaces that could be used as isolation hospitals/facilities in the event of a public health crisis</li> </ul>
<b>Healthcare Digitalization</b>	<ul style="list-style-type: none"> <li>Reassess and modernize electronic reportable disease surveillance systems to ensure test results can be transmitted quickly and effectively among reporting labs, healthcare providers, and public health authorities</li> <li>Incentivize digitalization of healthcare service across the value chain from the universal adoption of electronic health records among healthcare providers, medical clinics, and specialized care providers, to the widespread adoption of telehealth among providers and patients</li> <li>Consider launching health information exchange/platform and onboarding healthcare facilities, health agencies, and laboratories to seamlessly share electronic health records in real-time and facilitate health record exchange</li> <li>Consider developing contact tracing APIs that can integrate government agency databases and be used by public health authorities to monitor and track disease outbreaks</li> </ul>
<b>Citizen Education &amp; Buy-In</b>	<ul style="list-style-type: none"> <li>Expand public health and pandemic awareness via education systems, job trainings, televised advertisements, and other means, to instill public confidence in government and public health officials, and to familiarize the public with health crisis protocols</li> </ul>



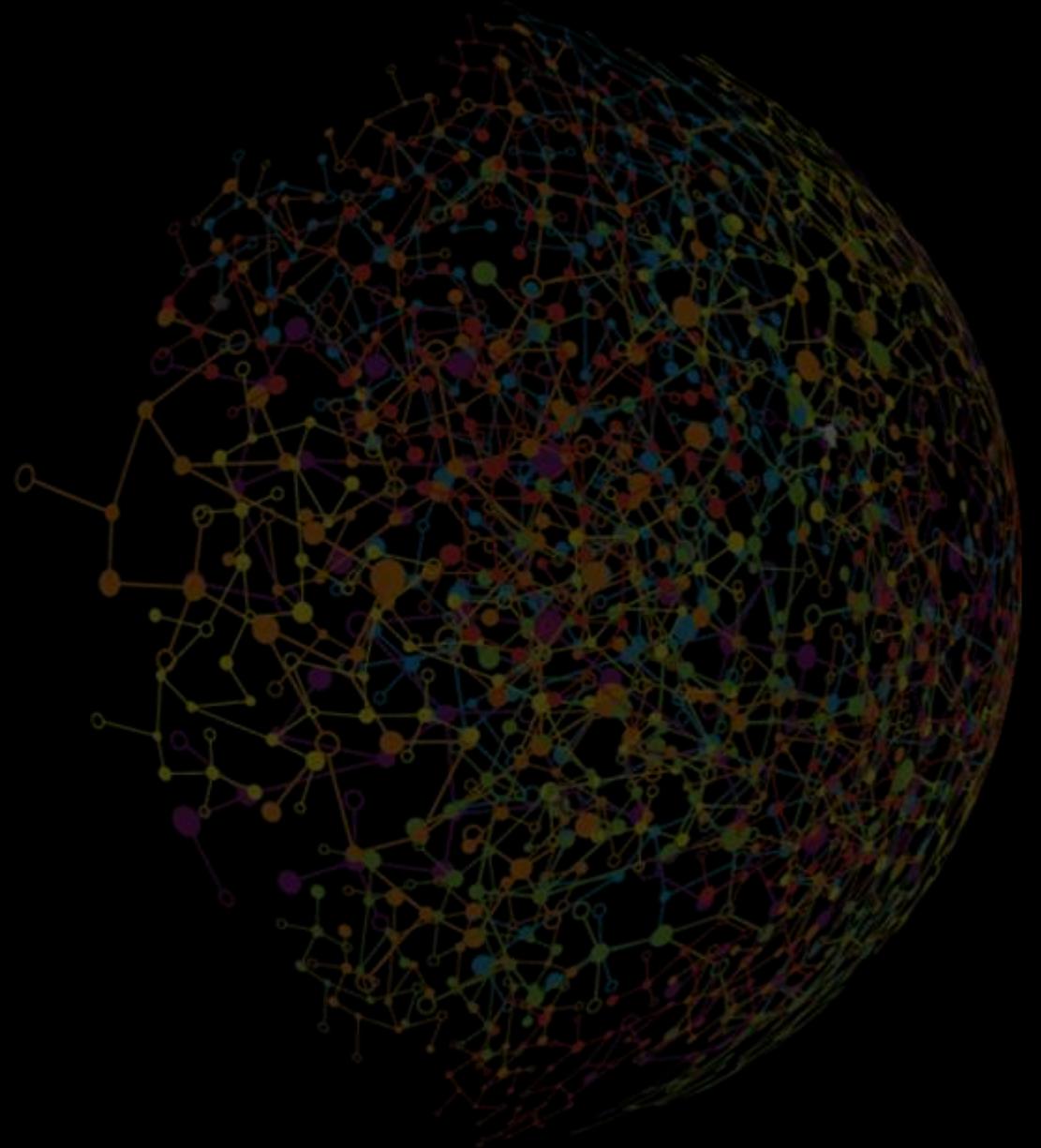
## Taiwan

*Building on learnings from its 2003 SARS experience, Taiwan revamped its public health approach to better prepare for disease outbreaks. So far, it has avoided massive economic shutdown while suffering only 500 cases and 7 deaths as of September 16<sup>th</sup>.*

As part of its long-term crisis planning, Taiwan:

- Set-up the Central Epidemic Command Center** to collaborate across agencies to coordinate interventions, mobilize personnel/funds, and align communications
- Shared databases across immigration and healthcare agencies** to make monitoring cases more transparent for authorities
- Leaned into digital tools** to monitor illnesses abroad and trace known and potential cases domestically

# Appendix



# Index: Government challenges

We oriented recommended activities around the key challenges governments are facing during the COVID-19 crisis, across short and long-term time horizons.

Domain	Government Challenge	Description
Living & Health	<i>Insufficient Healthcare Infrastructure</i>	Financially and infrastructurally strained healthcare system will require focus and investment to bring back to capacity; patients who were required to push back elective surgeries will create backlog of procedures for health systems
	<i>Vulnerable Population Inequities</i>	Inequities in resource access and socioeconomic outcomes of disadvantaged populations have been and will continue to be exacerbated
	<i>Food Security</i>	Socioeconomic shock of economic shutdown and food supply disruptions will push millions into food insecurity and will create disastrous 'hunger pandemic' scenario for millions of already food-insecure people
Economy	<i>Decreased Tax Revenues &amp; Strain on Public Services</i>	Revenue decline from lost income, sales, and property taxes will affect municipal abilities to fund vital public services and invest in future opportunities
	<i>Uncertain Employment Landscape</i>	Unemployment rates have soared due to shutdowns and are likely to persist into recovery as not all will find work immediately and as labor market shifts, evolving work practices, Future of Work trends, and automation will lead to a transformed landscape for workers and skillsets
	<i>Low Public Trust (Low Consumer &amp; Investor Confidence)</i>	General public fear/distrust of viral resurgence combined with income declines will hinder social and economic reengagement
	<i>Small Business Recovery</i>	Small businesses were disproportionately affected by the crisis; their recovery is vital to the livelihood of local people and economies
	<i>Broadband/5G Capabilities</i>	Stressed broadband infrastructure, as more residents work from home and commerce shifts online, will be a focal point of governments wanting to boost capabilities and transition to 5G
	<i>Supply Chain Disturbance</i>	Increased disruptions to vital supply chains providing foodstuffs, medical equipment/PPE, and raw material inputs for pharmaceutical products are occurring as a result of manufacturing shutdowns in export-heavy countries and increasing rates of infection among workers in these value chains
Education	<i>Public Education Disruption</i>	Lost schooling from closures and disparate levels of digital access will leave districts with significant educational gaps to address
Mobility	<i>Public Transit Insolvency</i>	Ridership declines will leave transit systems struggling to recover financially to make needed capital investments and continue to provide adequate services
Safety & Security	<i>COVID Resurgence &amp; Future Public Health Crisis Planning</i>	Future waves of COVID-19 threaten to return and damage economic and individual livelihoods. Future health threats will force governments to better plan emergency responses to avoid economic and health catastrophes

## CRITICAL FACTORS

# Critical factors: Descriptions

A number of factors influence the ways that federal/state/local governments experience the crisis and how they can address the associated challenges.

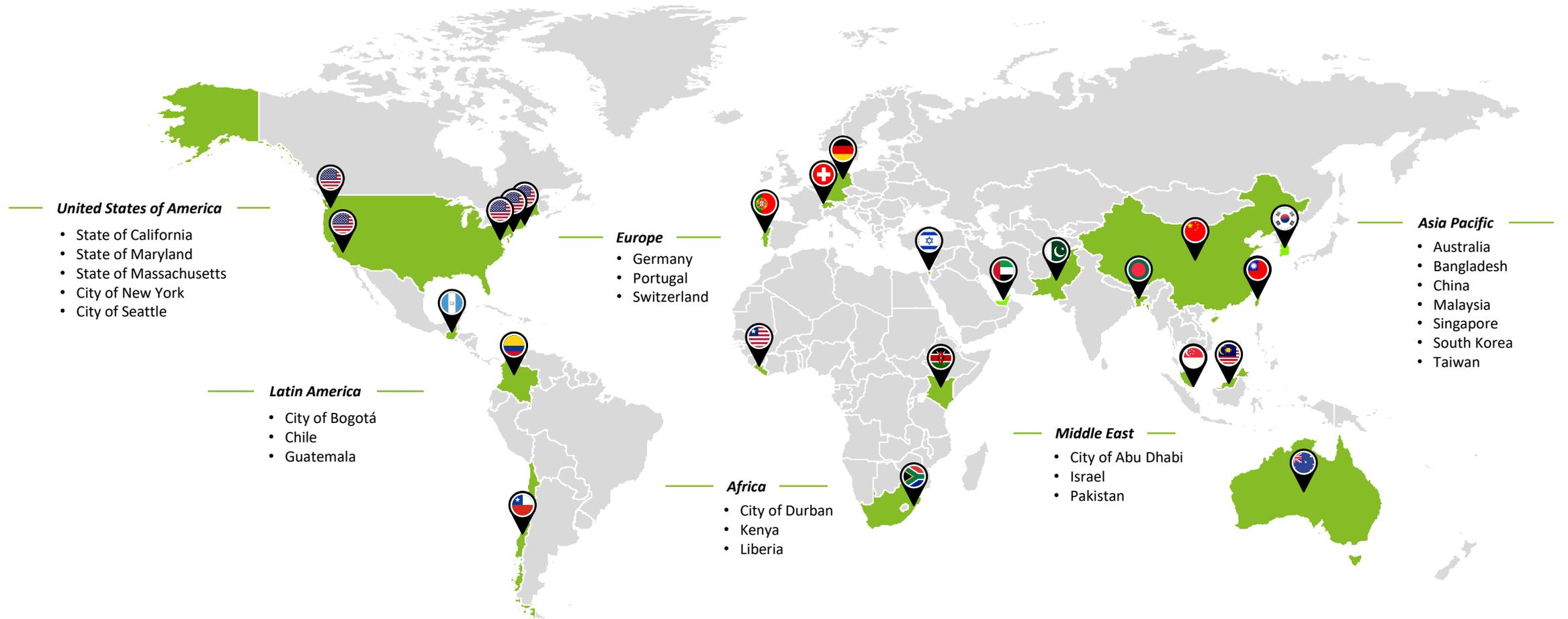
CRITICAL FACTORS	DESCRIPTION
<b>Federal &amp; State Aid</b>	Amount, frequency, and type of federal and state aid allocated to governmental jurisdictions influences the types of policies and measures that can be taken
<b>Government Authority</b>	Scope of government power, based on constitutional or legislative authority, affects the measures government can take; relevant for measures taken along intergovernmental lines or for those being taken in areas historically untouched by government
<b>Risk Profile</b> (Economic Diversity & Health Infrastructure)	Inherent risk for COVID-19, defined by potential disruption to economic and public health outcomes, varies largely based on the economic diversity and industry mix present in the jurisdiction, as well as the robustness and availability of healthcare infrastructure/services; government response to COVID-19 can vary widely as not all governments start with the same level of risk
<b>Citizen Trust</b>	Public opinion and trust in government differs across countries and influences the type/scope of COVID-19 approach that governments take as well as the public's acceptance/adherence to these policies
<b>Data Security &amp; Privacy Concerns</b>	Cybersecurity and data privacy questions arise among initiatives that involve digitalization of governmental processes; relevant since public sentiment on data protection can vary, particularly as governments increasingly use digital tools in COVID-19 crisis response

# Critical factors: Relevance to challenges

The factors affect how different government structures can address challenges; factor relevance varies depending on the specific challenge.

	DOMAIN	TOP GOVERNMENT CHALLENGES	CRITICAL FACOTRS				
			Federal & State Aid	Government Authority	Risk Profile	Citizen Trust	Data Security & Privacy
	<b>Living &amp; Health</b>	<i>Insufficient Healthcare Infrastructure</i>	✓	✓	✓	✓	✓
		<i>Vulnerable Population Inequities</i>	✓	✓	✓	✓	✓
		<i>Food Security</i>	✓	✓	✓	✓	✓
	<b>Economy</b>	<i>Decreased Tax Revenues &amp; Strain on Public Services</i>	✓	✓	✓	✓	
		<i>High Unemployment</i>	✓	✓	✓		
		<i>Low Public Trust (Low Consumer &amp; Investor Confidence)</i>	✓	✓		✓	✓
		<i>Uncertain Employment Landscape</i>	✓	✓	✓	✓	
		<i>Small Business Recovery</i>	✓	✓	✓	✓	
		<i>Broadband/5G Capabilities</i>	✓	✓	✓		✓
		<i>Supply Chain Disturbance</i>	✓	✓	✓		✓
	<b>Education</b>	<i>Public Education Disruption</i>	✓			✓	✓
	<b>Mobility</b>	<i>Public Transit Insolvency</i>	✓	✓		✓	
	<b>Safety &amp; Security</b>	<i>COVID Resurgence &amp; Future Public Health Crisis Planning</i>	✓	✓	✓	✓	✓

# Case studies: Geographies covered



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