McKinsey & Company

COVID-19: Briefing materials

Global health and crisis response

Updated: April 3, 2020

Current as of April 3, 2020

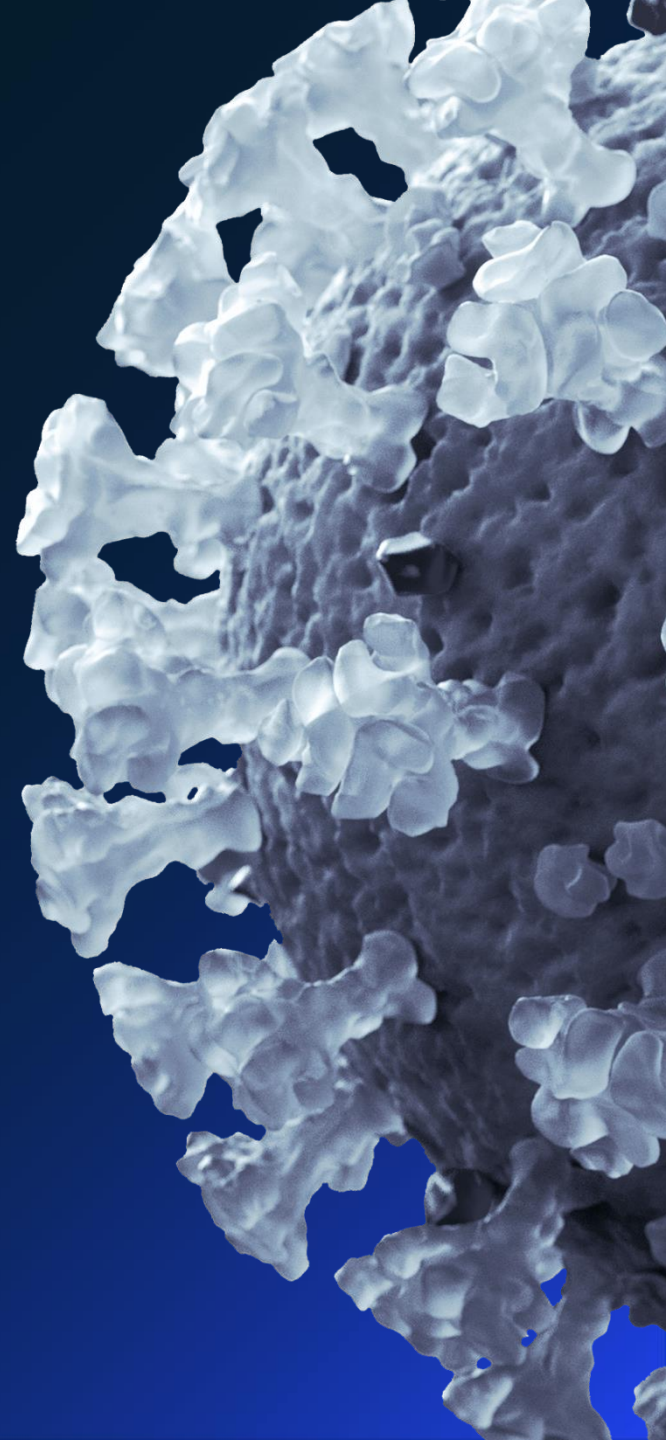
COVID-19 is, first and foremost, a global humanitarian challenge.

Thousands of health professionals are heroically battling the virus, putting their own lives at risk. Governments and industry are working together to understand and address the challenge, support victims and their families and communities, and search for treatments and a vaccine.

Companies around the world need to act promptly.

This document is meant to help senior leaders understand the COVID-19 situation and how it may unfold, and take steps to protect their employees, customers, supply chains, and financial results.

Read more on McKinsey.com



Executive summary

The situation now

At the time of writing, COVID-19 cases have exceeded 900,000 and are increasing quickly around the world, with concerns that a 15% hospitalization rate could drive hospital system overload.

To reduce growth in cases, governments have moved to stricter social distancing, with “shelter in place” orders in many areas in the U.S., Europe, India, and other countries. This has driven rapid demand declines—among the deepest in recent times—that are being met by attempts at bailouts.

Some Asian countries, e.g. China, have kept incremental cases low, and are restarting economies. So far, there is little evidence of a resurgence in infections.

How the situation may evolve

There is a limited window for governments to drive adequate public-health responses and meet demand drawdowns with proportionate economic interventions. Without this, the possibility of a deeper effect on lives and livelihoods is more likely.

Scaled-up testing will soon clarify the extent and distribution of spread in the U.S., and Europe.

Learnings from other countries and recent innovations (strict social distancing rules, drive through testing, off-the-shelf drugs that can address mild cases, telemedicine enabled home care) could provide basis for a restart.

Actions that institutions can take

1

Resolve

Address the immediate challenges that COVID-19 represents to the workforce, customers and partners

2

Resilience

Address near-term cash management challenges, and broader resiliency issues

3

Return

Create a detailed plan to return the business back to scale quickly

4

Reimagination

Re-imagine the “next normal”—what a discon-tinuous shift looks like, and implications for how the institution should reinvent

5

Reform

Be clear about how the environment in your industry (regulations, role of government) could evolve

Establishing a Nerve Center can ensure speed without sacrificing decision quality across these five dimensions.

Contents

The global spread is accelerating with more reports of local transmission

Latest as of April 3, 2020

Impact to date

>1 million
Reported confirmed cases

>52,000
Deaths

>200
Countries or territories with reported cases[1]

>160
Countries or territories with evidence of local transmission[2]

49
Countries or territories with more than 1000 reported cases[1]

~.2%
China share of new reported cases March 27–April 2

~38%
US share of new reported cases March 27–April 2

~52%
Europe share of new reported cases March 27-April 2

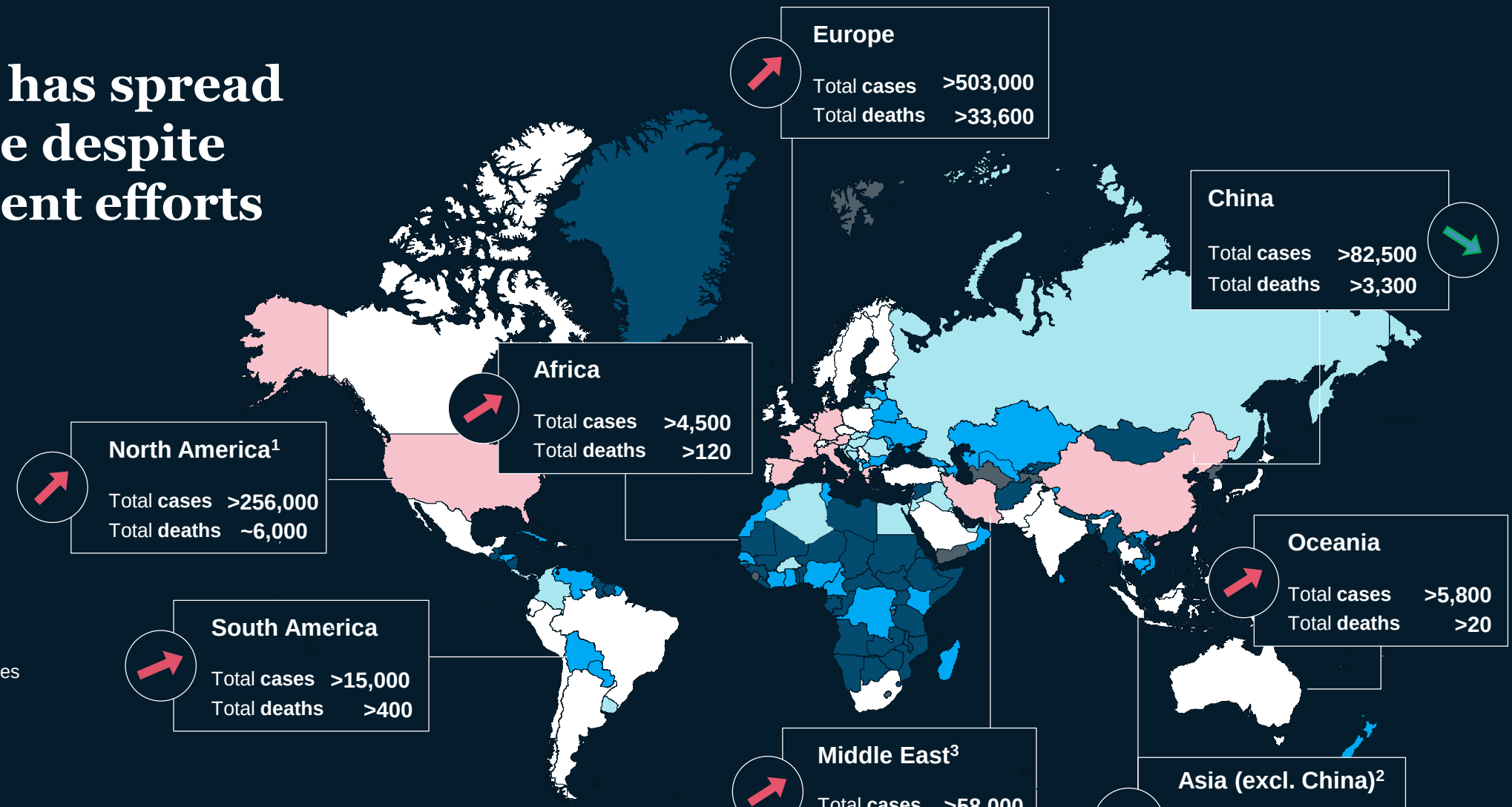
6
New countries or territories with cases March 27–April 2

1.Previously counted only countries; now aligned with WHO reports to include territories and dependencies; excluding cruise ship
2.Previously noted as community transmission in McKinsey documents; now aligned with WHO definition

Sources: World Health Organization, John Hopkins University, CDC, news reports

Current as of April 3, 2020

The virus has spread worldwide despite containment efforts



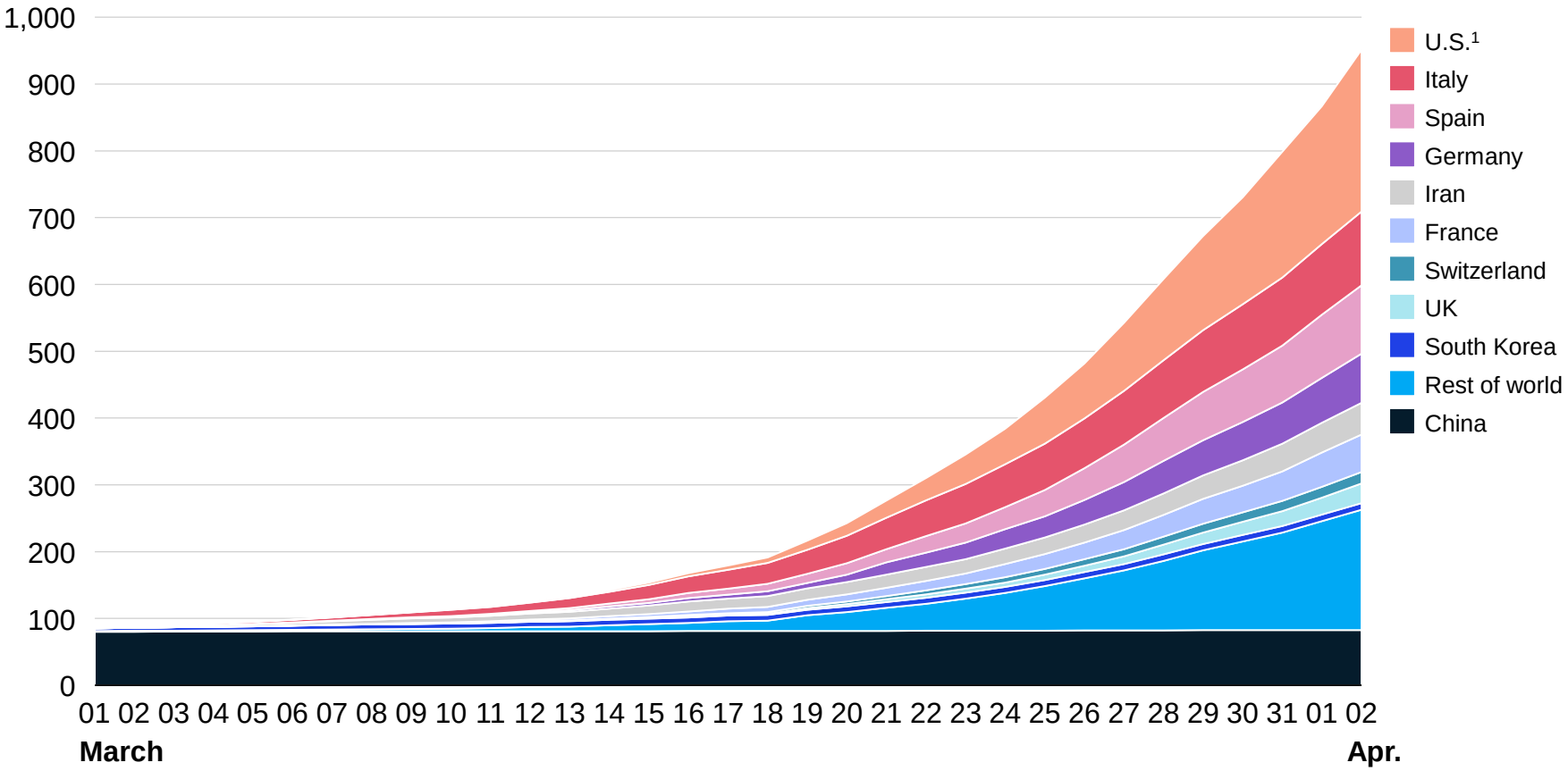
1. Johns Hopkins data used for U.S., all other North America countries reporting from WHO
2. Includes Western Pacific and South–East Asia WHO regions; excludes China; note that South Korea incremental cases are declining, however other countries are increasing
3. Eastern-Mediterranean WHO region

Source: World Health Organization, Johns Hopkins University, McKinsey analysis

Greatest share of recent cases comes from Europe, although U.S. cases are rapidly accelerating

Cumulative number of cases since March 1 – April 2

Thousands



Asia

Incremental cases for China and South Korea are now ~100 per day with continued focus on disease surveillance and management of imported cases and localized transmission

.

Europe

Cases and deaths continue to increase across the region. Effects of national lockdowns are beginning to show effect in Italy (which recorded relatively flat incremental cases for the past 3-4 days); close monitoring should continue in upcoming days to understand the impact of distancing measures across European states

United States

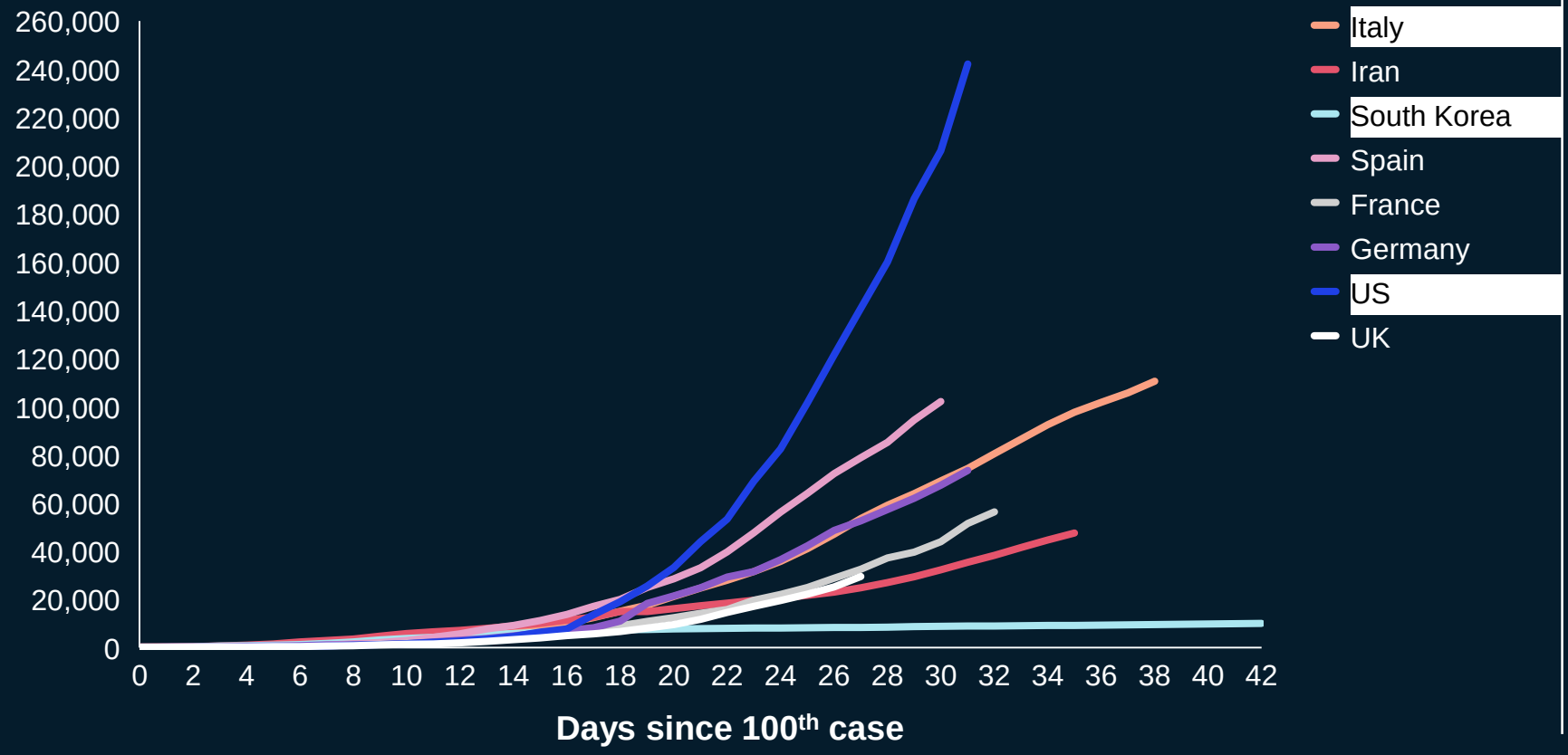
Dramatic rise in cases in the past week have led the U.S. to exceed all other countries (including China) in total cases; incremental cases are now above 10,000 per day with highest concentrations in New York, New Jersey and California

1. U.S. data from Johns Hopkins University CSSE (observed at 1700PT); all other data from WHO Situation Reports

Sources: WHO situation reports, Johns Hopkins University, press search

Countries begin with similar trajectories but curves diverge based on measures taken

Cumulative number of cases



Select country detail

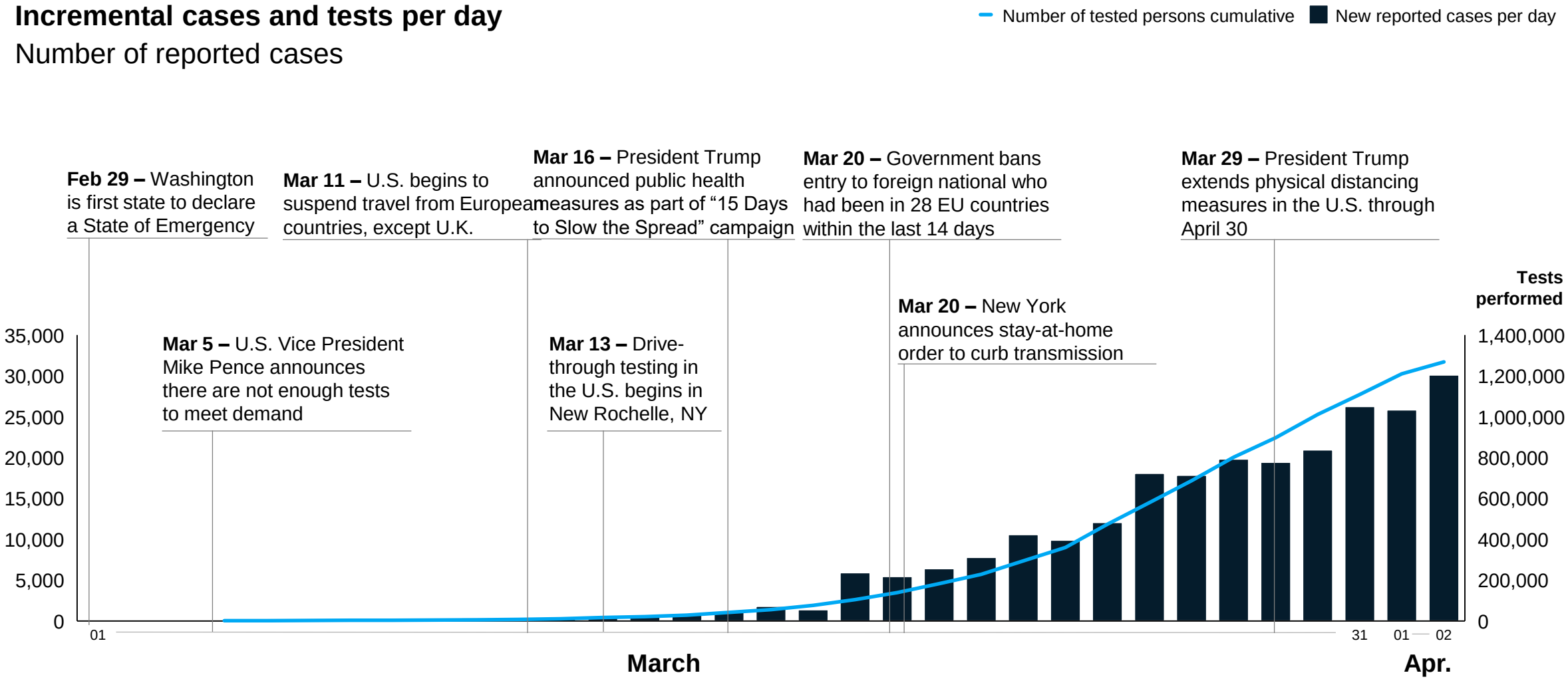
- **Italy:** After more than two weeks of national lockdown, incremental cases and deaths are flattening, indicating that public health are reducing transmission
- **South Korea:** Aggressive testing, contact tracing and surveillance, and mandatory quarantines are helping isolate virus clusters and dramatically slow spread of outbreak.
- **United States:** Cases and deaths are accelerating rapidly amidst containment responses that vary at state and local levels; U.S. now has the highest number of confirmed cases in the world

1. U.S. data from Johns Hopkins University CSSE; all other data from WHO Situation Reports

Sources: WHO situation reports; Johns Hopkins University, press search

US: Exponential growth in the past two weeks has made the US the newest COVID-19 epicenter

Incremental cases and tests per day
Number of reported cases

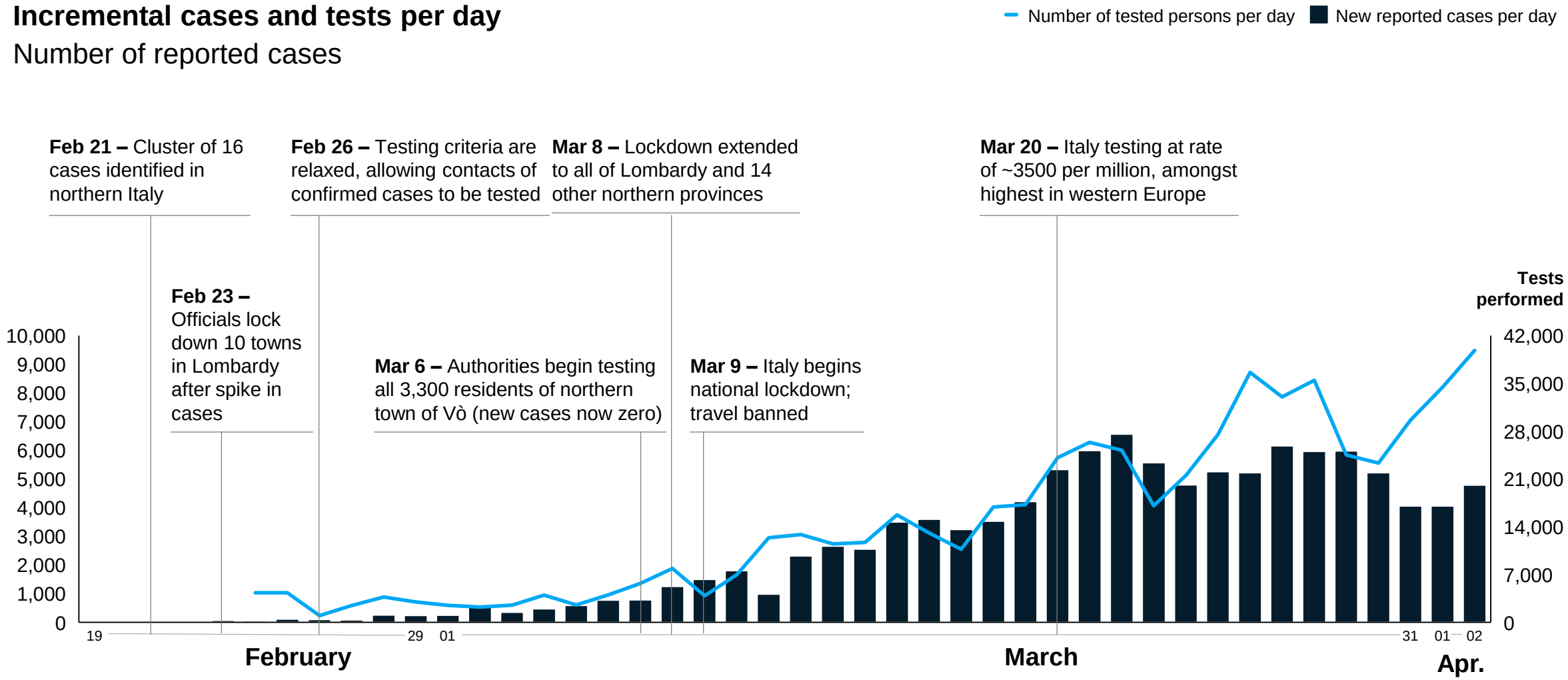


Source: Johns Hopkins University, COVID Tracking Project, NY Times, press search

Italy: The number of new cases has trended slowly down over the last 10-14 days

Incremental cases and tests per day

Number of reported cases

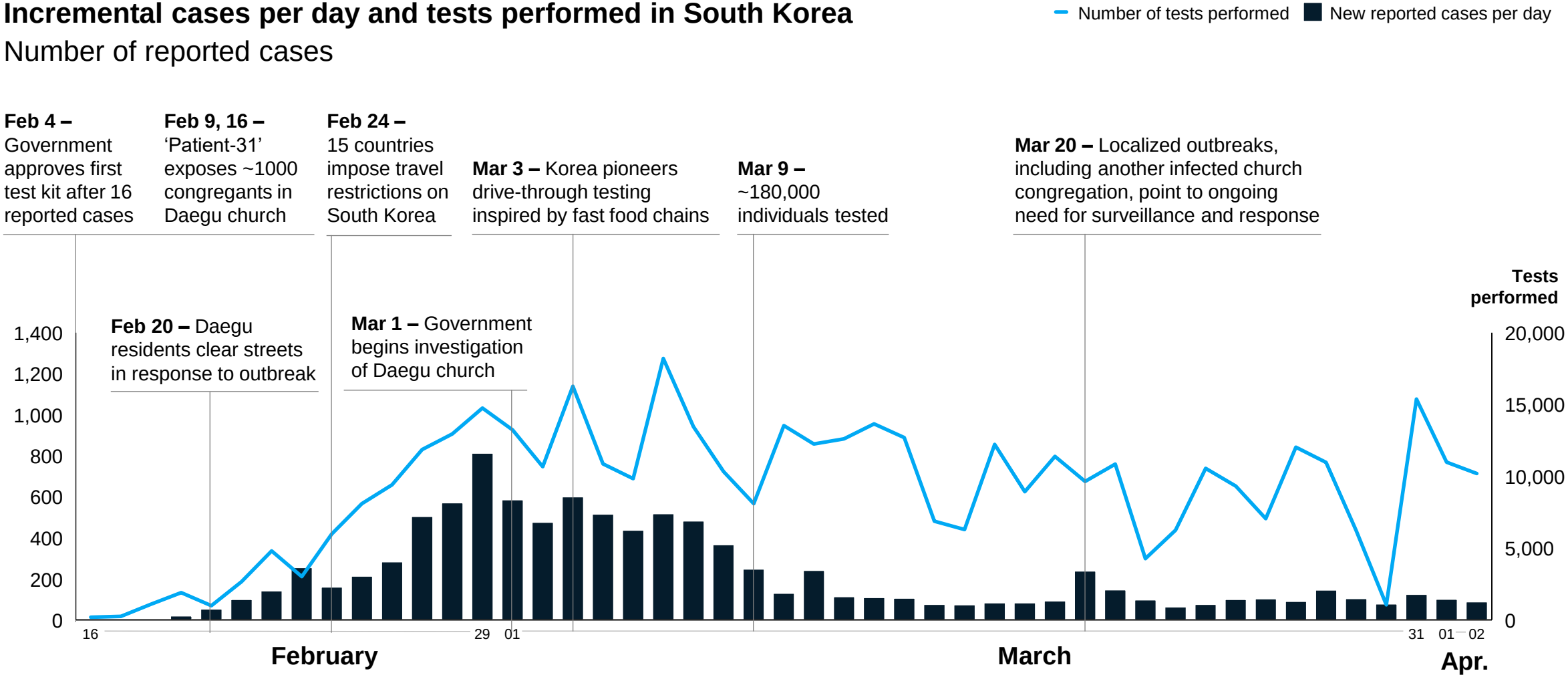


Source: WHO situation reports, CNN, New York Times, press search

South Korea: Rigorous investigation of outbreak clusters and rapidly scaled testing capabilities limited spread

Incremental cases per day and tests performed in South Korea

Number of reported cases



Source: WHO situation reports, CNN, New York Times, Korean CDC, press search

China: Rapid lockdowns were employed to manage outbreak before ramping up testing and response capabilities

Incremental cases per day and total reported cases in China

Number of reported cases per day

1. Changes in new case tracking and reporting methodology yield spike in reported cases

Source: WHO situation reports, New York Times, Chinese government official notices and reports, press search

Key considerations for disease progression

A

Growing evidence on the extent and role of asymptomatic cases and transmission

Although the range is large for estimated share of total cases (~20-50% for percentage of cases that are asymptomatic and ~10-60% for percentage of transmission due to asymptomatic cases)

There is significantly higher prevalence than confirmed cases, that could require continued strict social distancing for a while

B

Seasonality is unlikely to be a major contributor to stopping the spread of COVID-19

Prevailing outlook is that while COVID is likely to transmit more effectively in winter than summer, seasonality alone will not be enough to curtail transmission, requiring ongoing public health intervention even as weather gets better

C

Promising testing innovations may greatly expand disease surveillance capabilities

At home sampling and point-of-care diagnostics can improve convenience and reduce processing times. Additionally, new antibody diagnostics under development may facilitate testing for prior exposure, which may allow significant segments of the population with immunity to resume activity

D

Economic restarts in Asia reflect possibility to restart limiting local transmission however need for renewed travel restrictions

experience from Hong Kong, Singapore and Taiwan has shown spike in cases following return to in-person employment and relaxation of travel restrictions. While most cases are categorized as imported, Hong Kong especially has also seen renewed growth in local transmission. In response all three economies have reinstituted restrictions on travel and in-person gatherings.

A: Emerging evidence indicates that asymptomatic cases could be drivers of transmission

Asymptomatic Symptomatic

Officials agree asymptomatic / pre-symptomatic cases are quite common

World Health Organization

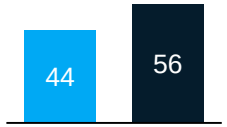
"The risk of catching COVID-19 from someone with no symptoms at all is very low. However, many people with COVID-19 experience only mild symptoms. This is particularly true at the early stages of the disease. It is therefore possible to catch COVID-19 from someone who has, for example, just a mild cough and does not feel ill."

CDC Centers for Disease Control and Prevention

"One of the [pieces of] information that we have pretty much confirmed now is that a significant number of individuals that are infected actually remain asymptomatic. That may be as many as 25%. That's important, because now you have individuals that may not have any symptoms that can contribute to transmission, and we have learned that in fact they do contribute to transmission.

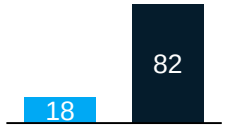
Emerging evidence suggests that 20-50% of cases are asymptomatic / pre-symptomatic…

March 15: Announcement by the Iceland government based on 425 confirmed cases



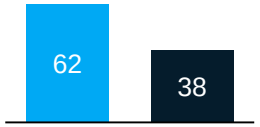
March 12: EU CDC report based on ~13,000 lab confirmed cases in Italy

March 16: announcement by the South Korea CDC based on ~8,200 reported cases

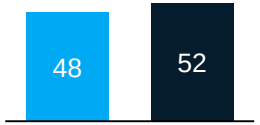


Study of 643 infected cases on Diamond Princess cruise ship published March 12 in Eurosurveillance journal

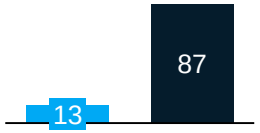
And that asymptomatic / pre-symptomatic transmission may account for 10-60% of cases



Study based on 135 cases in Tianjin, China published March 8 on medRxiv (preprint server for health science)



Study based on 91 cases in Singapore published March 8 on medRxiv (preprint server for health science)



Study of 468 reported cases in China published March 19 via early release in Emerging Infectious Diseases journal

Source: WHO, US CDC, EU CDC, Korea CDC, Government of Iceland, Mizumoto et. al "Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess cruise ship, Yokohama, Japan, 2020," Ganyani et. al, "Estimating the generation interval for COVID-19 based on symptom onset data," Du et. al, "Serial Interval of COVID-19 among Publicly Reported Confirmed Cases"; https://www.npr.org/sections/health-shots/2020/03/31/824155179/cdc-director-on-models-for-the-months-to-come-this-virus-is-going-to-be-with-us

Public health response needs to account for possible widespread transmission asymptomatic individuals

- Countries / territories with limited confirmed cases and testing could still have significant transmission prevalent
- Resurgence could be driven by asymptomatic transmissions
- Could require continued strict social distancing for a while

Antibody blood tests are currently the best method for detecting asymptomatic cases

B: Seasonality is unlikely to be a major contributor to stopping the spread of COVID-19

Some early evidence indicates negative association between temperature/ humidity and COVID-19 transmission…

- High temperature and high relative humidity show association with reduced transmission of COVID-19 in regressions in China data1
- Majority of COVID-19 cases fall within temperate climates (95% of cases falling between 2.0-9.5 degrees Celsius)2

… However, climate and seasonality alone are broadly not expected to stop or significantly slow transmission

- Applying observed association between temperature/humidity and transmission rates, North American and European countries would see little impact of climate on transmission until late June3
- Historical pandemic influenza analogues do not exhibit same patterns as seasonal flu in terms of waning during summer months4

> **"For the novel coronavirus SARS-CoV-2, we have reason to expect…it may transmit somewhat more efficiently in winter than summer, though we don't know the mechanism(s) responsible. The size of the change is expected to be modest, and not enough to stop transmission on its own"**
>
> **Marc Lipsitch, PhD, Harvard School of Public Health**

Ongoing public health measures and private sector response leaders should not rely on seasonal changes to provide immediate or significant relief

Ongoing disease containment and surveillance will continue to be critical in the near term until validation of reduced transmission

1. Jingyuan Wang, Ke Tang, Kai Feng and Weifeng Lv 2020
2. Miguel B. Araújo and Babak Naimi 2020
3. Qasim Bukhari and Yusuf Jameel 2020
4. Marc Lipsitch 2020

C: Two major test-types detect either active or past infections

Types	Technology	Details	Availability
Molecular Detect genetic material of the virus	**RT-PCR** Reverse transcription polymerase chain reaction	• Steps of amplifying and detection of viral genome **identifies presence of virus** • **Predominant testing method globally and most accurate** • Lab based tests typically takes **~3 days for results** • Near point of care takes **<1 hour for results**	**Growing availability** varies by geography; Rapid PCR test received emergency FDA approval
	Isothermal amplification	• Rapid diagnostics with a **single step identification of virus** • Typically near point of care (e.g., hospitals, clinics) taking **< 20min**	**Recently approved tests**
	CRISPR	• CRISPR protein used after isothermal amplification to detect viral RNA presence	**Experimental / proof of concept**
Immunological / serologic tests Detect antigens or antibodies	**Lateral flow tests** **CLIA:** Chemi-luminescence Immuno Assay **ELISA:** Enzyme linked immune sorbent assay	• **Detects presence of antibodies and antigens based on binding to enzymes** • Negative test results don't imply lack of infection but just antibodies below detection limit; **test most effective 8-10 days since infection started** • Lateral flow tests are shorter, point of care, self administered (like a pregnancy test), Typically **<15 min** • CLIA / ELISA tests are primarily lab based / near point of care; typically **takes <1 hour for results**	**Starting to become available in Europe, only one in EUA in the US** **Over 30 tests under consideration**

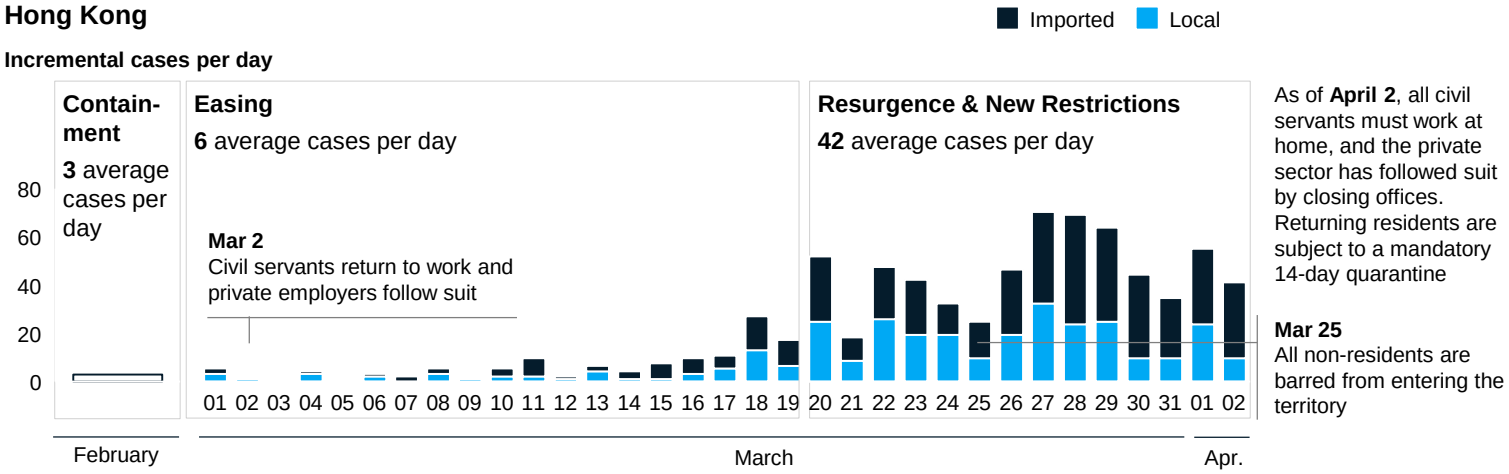
Improved speed and scale of live case confirmation will be critical to facilitating test and trace strategies for lower burden settings or for countries that have successfully contained initial outbreaks and are moving towards economic restart

Antibody tests with scaled distribution can enable recovered populations to resume normal activity

Source: https://www.finddx.org/covid-19/pipeline/?section=immunoassays#diag_tab https://www.nature.com/articles/d41587-020-00010-2 , CDC website, https://www.cepheid.com/coronavirus, https://www.360dx.com/coronavirus-test-tracker-launched-covid-19-tests,

D: Asian jurisdictions have restarted economy, containing local transmission, though travel related transmissions persist

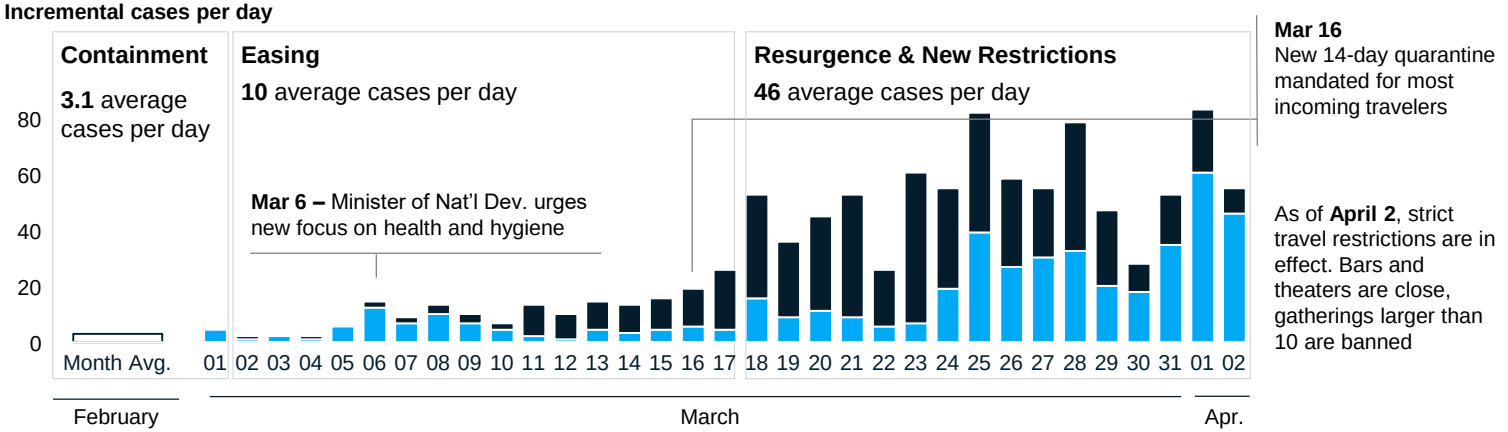
Hong Kong



As of **April 2**, all civil servants must work at home, and the private sector has followed suit by closing offices. Returning residents are subject to a mandatory 14-day quarantine

Mar 25
All non-residents are barred from entering the territory

Singapore



Mar 16
New 14-day quarantine mandated for most incoming travelers

As of **April 2**, strict travel restrictions are in effect. Bars and theaters are close, gatherings larger than 10 are banned

Source: Hong Kong Government Data Repository, Singapore Ministry of Health, Taiwan Center for Disease Control, press search

Some Asian jurisdictions have been able to restart their economies with limited local transmission

Imported cases reflect a high fraction of the total, which may drive longer imposition of travel restrictions relative to other public health measures

Contents

The Imperative of our Time

Imperatives

1

Safeguard our lives

1a. **Suppress the virus** as fast as possible

1b. **Expand treatment and testing** capacity

1c. **Find "cures";** treatment, drugs, vaccines

2

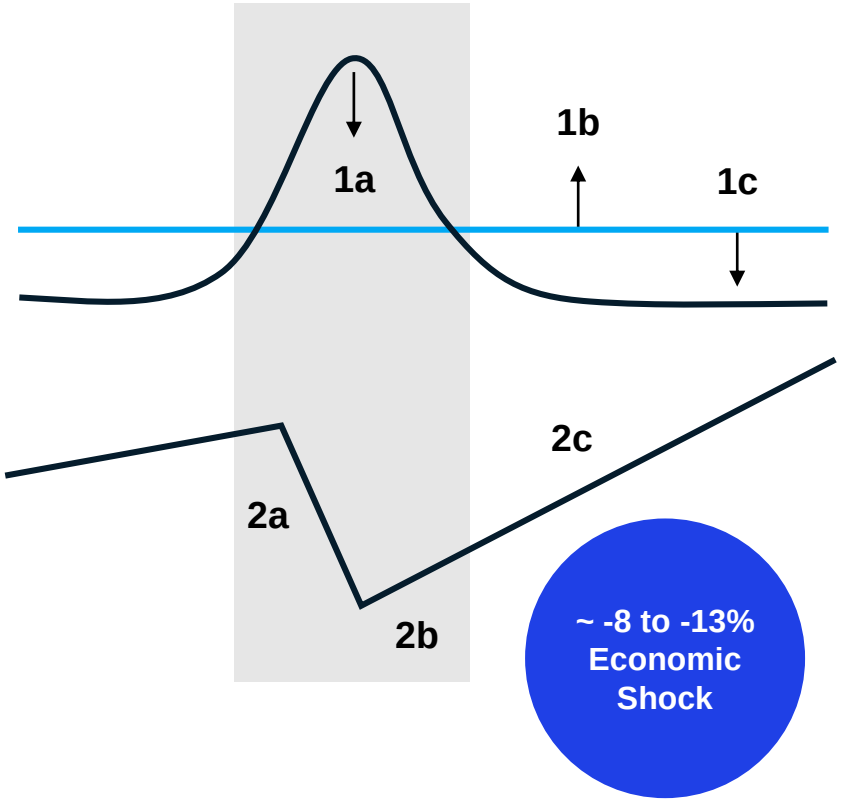
Safeguard our livelihoods

2a. **Support people and businesses** affected by lockdowns

2b. **Prepare to get back to work safely** when the virus abates

2c. **Prepare to scale the recovery** away from a -8 to -13% trough

"Timeboxing" the Virus and the Economic Shock



Source: McKinsey analysis, in partnership with Oxford Economics

Scenarios for the economic impact of the COVID-19 crisis

GDP impact of COVID-19 spread, public health response, and economic policies

Virus spread and public health response

Effectiveness of the public health response in controlling the spread and human impact of COVID-19

Rapid and effective control of virus spread

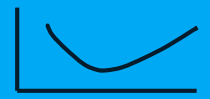
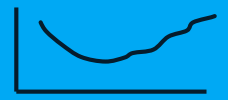
Strong public health response succeeds in controlling spread in each country within 2-3 months

Effective response, but (regional) virus resurgence

Public health response initially succeeds but measures are not sufficient to prevent viral resurgence so social distancing continues (regionally) for several months

Broad failure of public health interventions

Public health response fails to control the spread of the virus for an extended period of time (e.g., until vaccines are available)

B1 Virus contained, but sector damage; lower long-term trend growth 	**A3** Virus contained, slow recovery  **Virus Contained**	**A4** Virus contained; strong growth rebound 
B2 Virus resurgence; slow long-term growth 	**A1** Virus resurgence; slow long-term growth  **Muted World Recovery**	**A2** Virus resurgence; return to trend growth  Strong World Rebound
B3 Pandemic escalation; prolonged downturn without economic recovery 	**B4** Pandemic escalation; slow progression towards economic recovery 	**B5** Pandemic escalation; delayed but full economic recovery 
Ineffective interventions Self-reinforcing recession dynamics kick-in; widespread bankruptcies and credit defaults; potential banking crisis	**Partially effective interventions** Policy responses partially offset economic damage; banking crisis is avoided; recovery levels muted	**Highly effective interventions** Strong policy responses prevent structural damage; recovery to pre-crisis fundamentals and momentum

Knock-on effects and economic policy response

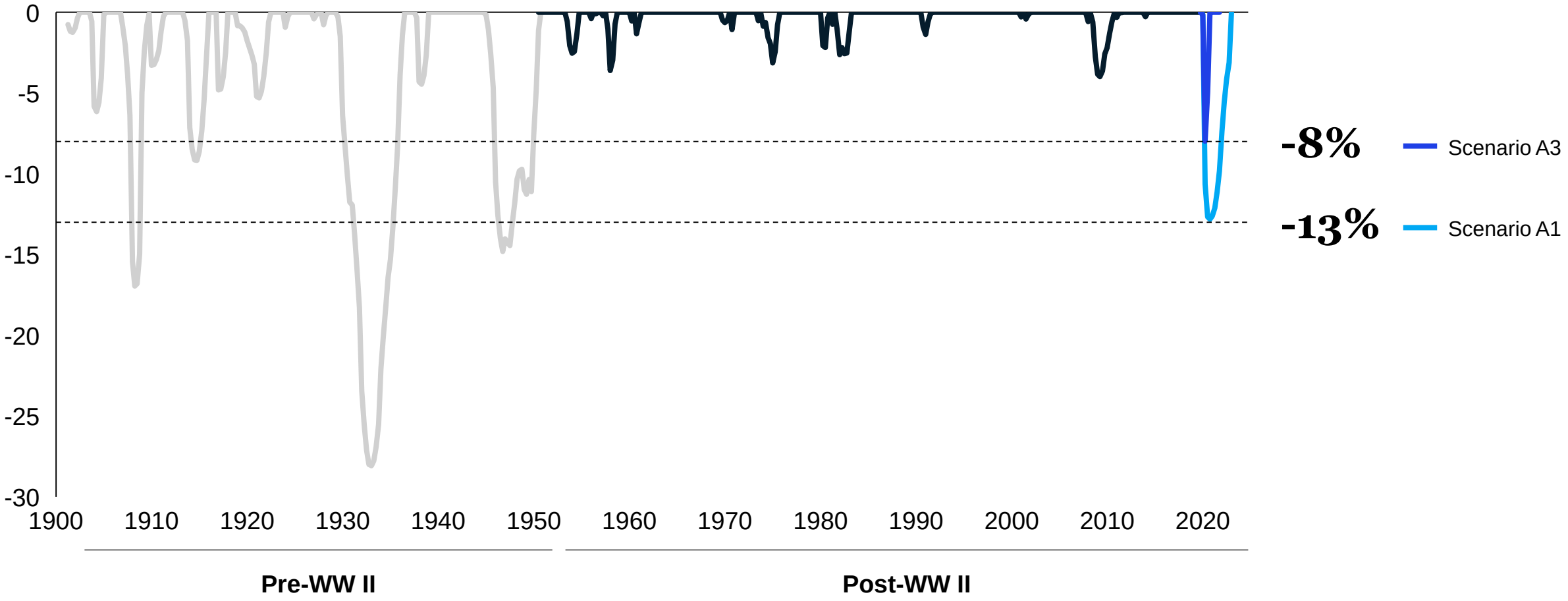
Speed and strength of recovery depends on whether policy moves can mitigate self-reinforcing recessionary dynamics (e.g., corporate defaults, credit crunch)

Source: "Safeguarding our lives and our livelihoods: The imperative of our time,"; available online at https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/safeguarding-our-lives-and-our-livelihoods-the-imperative-of-our-time; date of access: Mar 31st 2020

COVID-19 U.S. impact could exceed anything since the end of WWII

United States real GDP

%, total draw-down from previous peak



Source: Historical Statistics of the United States Vol 3, Bureau of economic analysis; McKinsey team analysis, in partnership with Oxford Economics

Scenario A3: Virus Contained

The virus continues to spread across the Middle East, Europe and the US until mid Q2, when virus seasonality combined with a stronger public health response drives case load reduction

Epidemiological scenario

China and East Asian countries continue their current recovery and control the virus by early Q2 2020

Virus in Europe and the United States would be controlled effectively with between two to three months of economic shutdown; new case counts peak by end April and declines by June with stronger public health response and seasonality of virus

Economic impacts

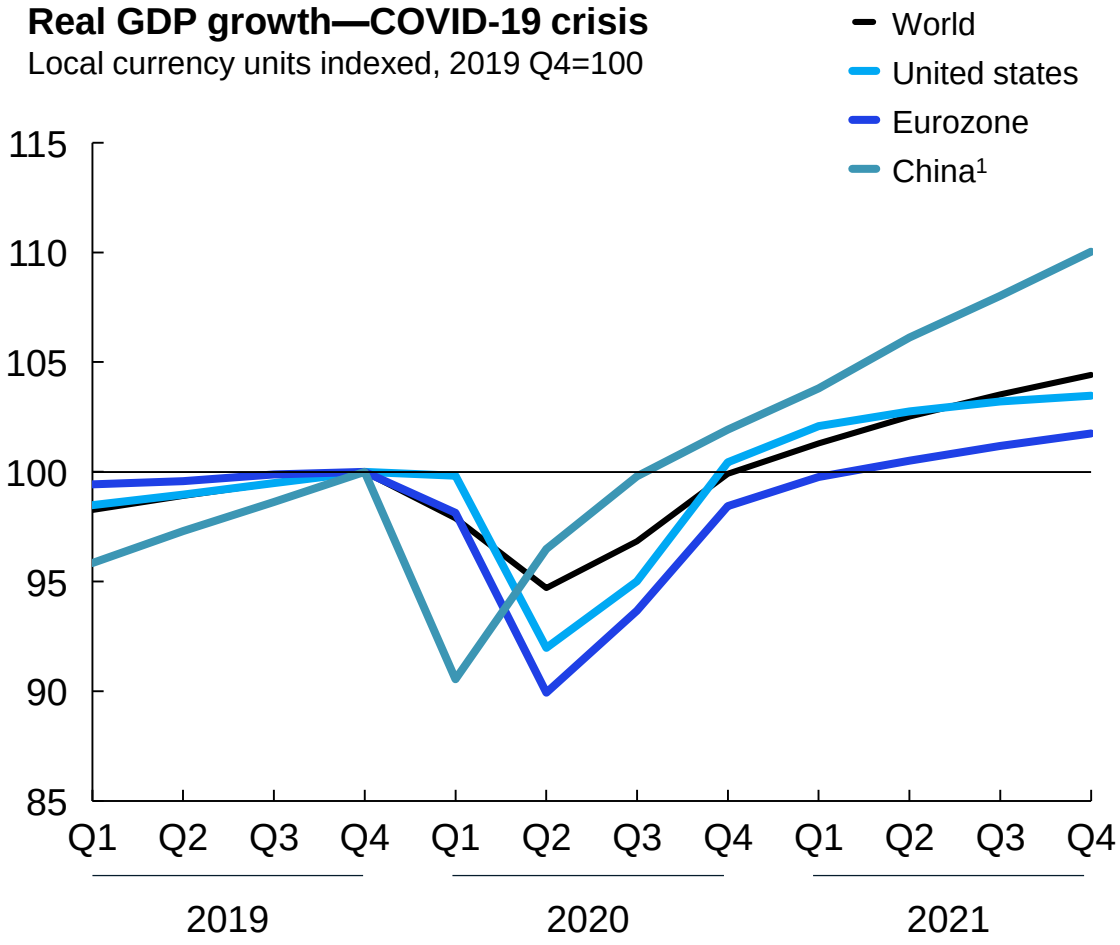
China will undergo a sharp but brief slowdown and relatively quickly rebound to pre-crisis levels of activity. China's annual GDP growth for 2020 would end up roughly flat

In Europe and the US, monetary and fiscal policy would mitigate some of the economic damage with some delays in transmission, so that a strong rebound could begin after the virus was contained at the end of Q2 2020

Most countries are expected to experience sharp GDP declines in Q2, which would be unprecedented in the post WWII era

Scenario A3: Virus Contained

Real GDP growth—COVID-19 crisis
Local currency units indexed, 2019 Q4=100



	Real GDP drop 2019 Q4–2020 Q2 % change	2020 GDP growth % change	Time to return to pre-crisis Quarter
China	-3.5%	-0.5%	2020 Q4
USA	-8.0%	-2.4%	2020 Q4
World	-5.3%	-1.8%	2021 Q1
Eurozone	-10.1%	-4.7%	2021 Q2

1. Seasonally adjusted by Oxford Economics

Source: McKinsey analysis, in partnership with Oxford Economics

Scenario A1: Muted World Recovery

The virus spreads globally without a seasonal decline. Health systems are overwhelmed in many countries, especially the poorest, with large-scale human and economic impact

Epidemiological scenario

China would need to clamp down on regional recurrences of the virus

The United States and Europe would fail to contain the virus within one quarter and be forced to implement some form of physical distancing and quarantines throughout the summer

Economic impacts

China would recover more slowly and would also be hurt by falling exports to the rest of the world. Its economy could face a potentially unprecedented contraction

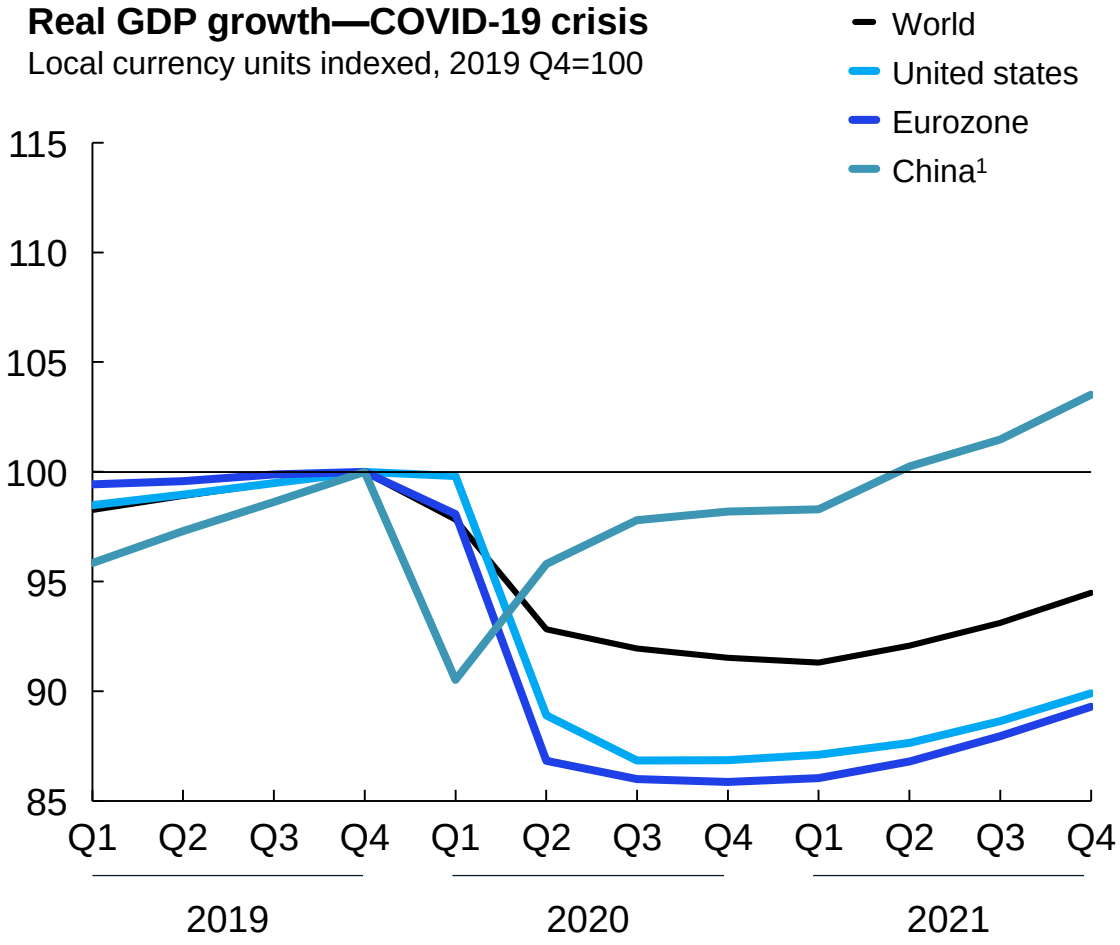
The United States and Europe would face a GDP decline of 35 to 40 percent at an annualized rate in Q2, with major economies in Europe registering similar performance. Economic policy would fail to prevent a huge spike in unemployment and business closures, creating a far slower recovery even after the virus is contained

Most countries would take more than two years to recover to pre-virus levels of GDP

Scenario A1: Muted World Recovery

Current as of April 3, 2020

Real GDP growth—COVID-19 crisis
Local currency units indexed, 2019 Q4=100



	Real GDP drop 2019 Q4–2020 Q2 % change	2020 GDP growth % change	Time to return to pre-crisis Quarter
China	-4.2%	-2.3%	2021 Q2
USA	-11.1%	-8.7%	2024 Q2
World	-7.2%	-5.7%	2022 Q4
Eurozone	-13.2%	-10.6%	2024 Q4

1. Seasonally adjusted by Oxford Economics

Source: McKinsey analysis, in partnership with Oxford Economics

What business leaders should look for in coming weeks

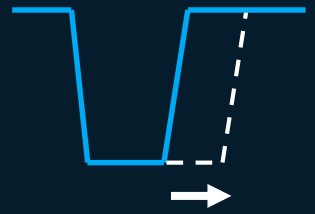
There are three questions business leaders are asking, and a small number of indicators that can give clues

Depth of disruption

How deep are the demand reductions?

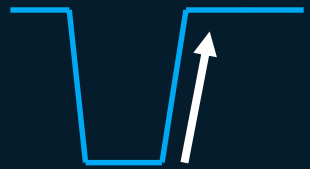
Length of disruption

How long could the disruption last?



Shape of recovery

What shape could recovery take?



Indicators

Epidemiological

Depth of disruption

- Time to implement social distancing after community transmission confirmed
- Number of cases – absolute (expect surge as testing expands)
- Geographic distribution of cases relative to economic contribution

Length of disruption

- Rate of change of cases
- Evidence of virus seasonality
- Test count per million people
- % of cases treated at home
- % utilization of hospital beds (overstretched system recovers slower)
- Availability of therapies
- Case fatality ratio vs. other countries

Shape of recovery

- Effective integration of public health measures with economic activity (e.g. rapid testing as pre-requisite for flying)
- Potential for different disease characteristics over time (e.g. mutation, reinfection)

Economic

Depth of disruption

- Cuts in spending on durable goods (e.g., cars, appliances)
- Extent of behavior shift (e.g., restaurant spend, gym activity)
- Extent of travel reduction (% flight cancellations, travel bans)

Length of disruption

- Late payments/credit defaults
- Stock market & volatility indexes
- Purchasing managers index
- Initial claims for unemployment

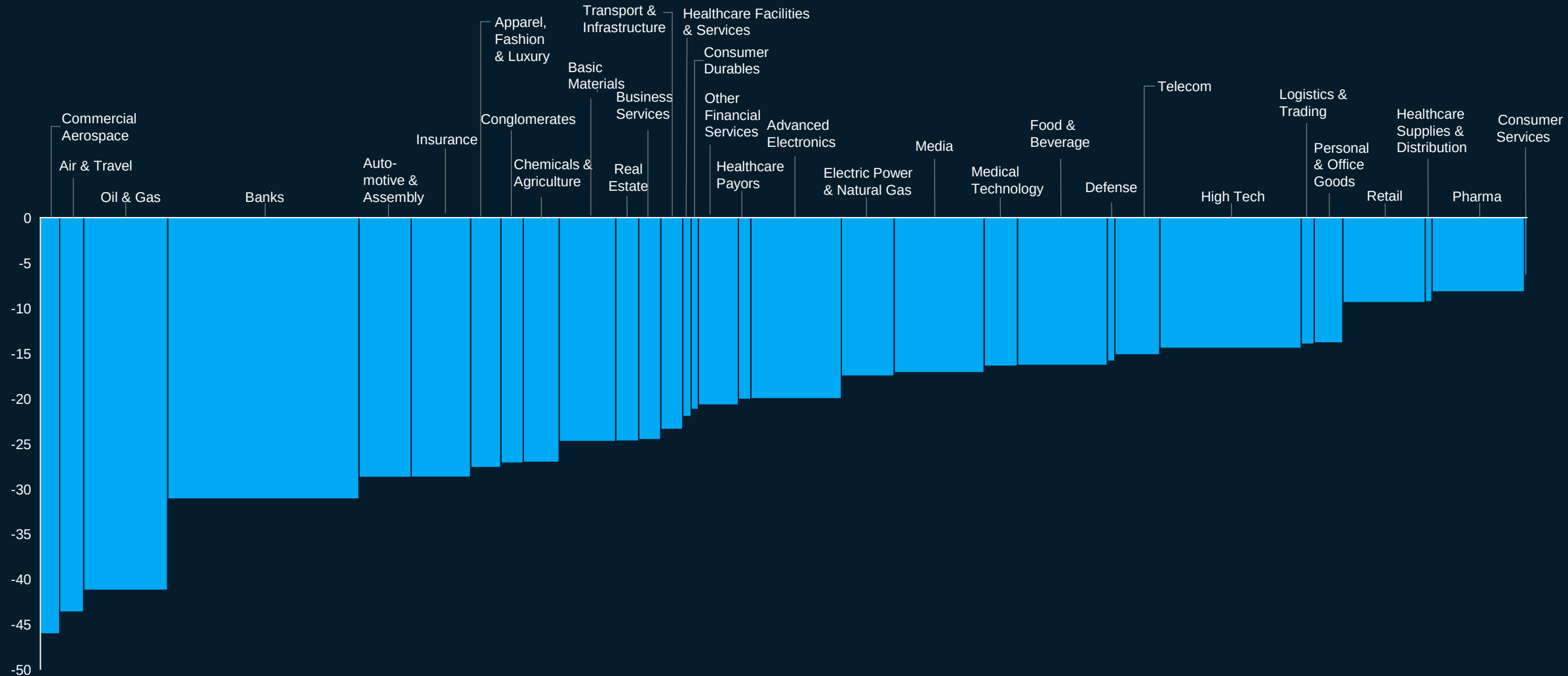
Shape of recovery

- Bounce-back in economic activity in countries that were exposed early in pandemic
- Early private and public sector actions during the pandemic to ensure economic restart

Contents

Market capitalization has declined across sectors, with significant variation to the extent of the decline

Weighted average year-to-date local currency total shareholder returns by industry in percent[1]. Width of bars is starting market cap in $

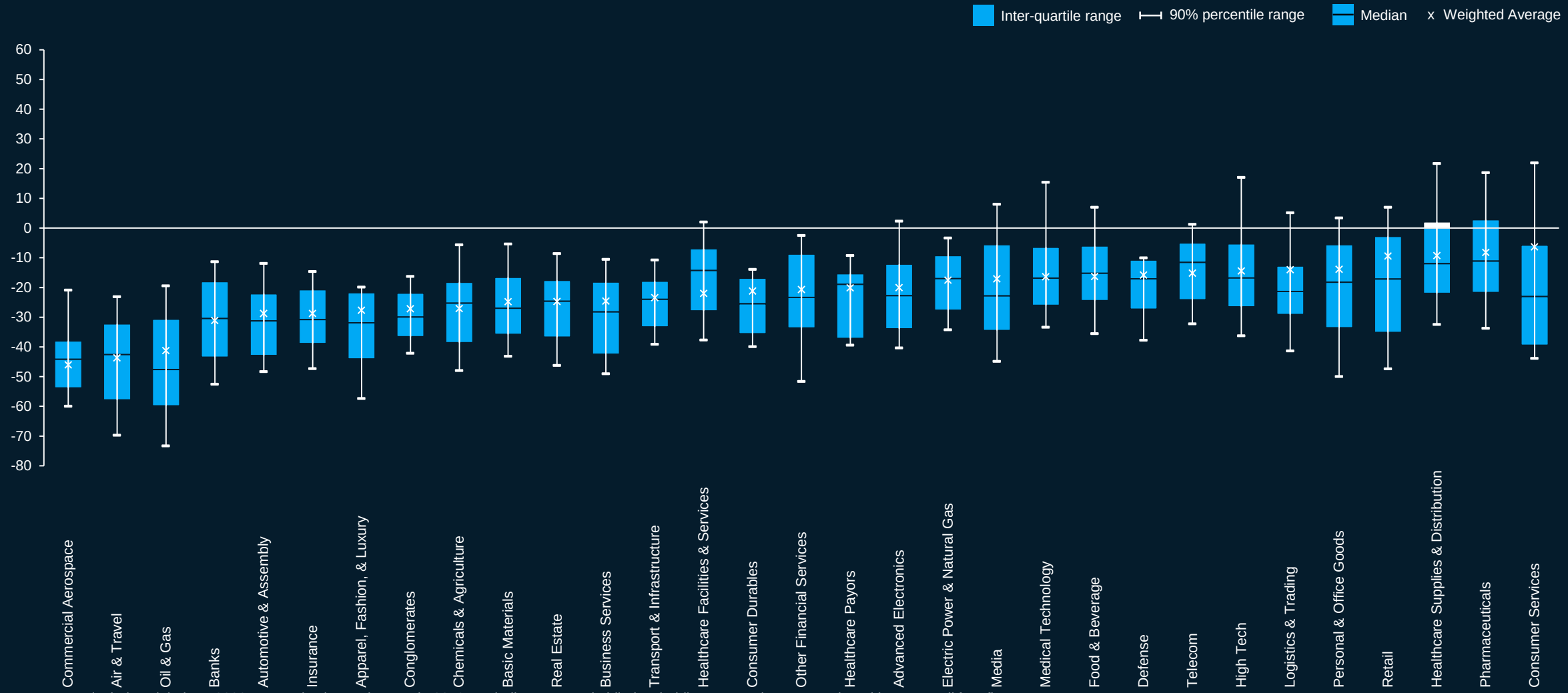


1. Data set includes global top 3000 companies by market cap in 2019, excluding some subsidiaries, holding companies, companies with very small free float and companies that have delisted since

Source: Corporate Performance Analytics, S&CF Insights, S&P Global

Even within sectors, there is significant variance between companies

Distribution of year-to-date total shareholder returns by industry percent[1]



1. Data set includes global top 3000 companies by market cap in 2019, excluding some subsidiaries, holding companies, companies with very small free float and companies that have delisted since

Source: Corporate Performance Analytics, S&CF Insights, S&P Global

Preliminary views of some of the hardest hit sectors

Based on the partially effective scenario

	Commercial Aerospace	Air & Travel	Oil & Gas	Automotive	Insurance Carriers
Avg. stock price change[1]	**-46%**	**-44%**	**-42%**	**-29%**	**-29%**
Industry specific examples	Preexisting industry conditions, challenges with airlines' balance sheet resilience, and high fixed costs cause **near-term cash flow issues and long-term growth uncertainty**. It may take years to recover from production and supply chain stoppages, due to critical vendors located in areas impacted by the virus and liquidity challenges especially amongst Tier 3 suppliers. Long order backlogs mitigate some concerns, especially on narrowbody aircraft, though widebody demand could be structurally impacted in the near-term	Deep, immediate demand shock 5-6x greater than Sept 11; ~70-80% near-term demand erosion due to int'l travel bans & quarantines now prevalent in 130+ nations N. Hemisphere summer travel peak season deeply impacted since pandemic fears coincide with peak booking period Recovery pace faster for **domestic travel** (~2-3 quarters); slower for **long-haul and int'l travel** (6+ quarters)	**Oil price decline** driven by both short-term demand impact and supply overhang from OPEC+ decision to increase production **Oversupply expected to remain in the market even after demand recovery**, and post 2020, unless OPEC+ decides to cut production	**Existing vulnerabilities** (e.g., trade tensions, declining sales) **amplified by acute decline in global demand**; Mar. 26 Survey of US auto consumers indicates 70% of car buyers are deferring by ~6 mo. or no longer intending to purchase; >2M units lost in China by Feb. Despite ongoing Chinese economic restart, there is **continued supply chain and production disruption** as majority of EU and US OEMs have temporarily closed plants and Hubei manufacturing remains at ~50% capacity	**US insurers have been strongly affected**, especially reinsurers and life & health insurers **Reduced interest rates** and investment performance **impacting returns – esp. for longer-tail lines** **Disruptions expected in new business and underwriting processes** due to dependence on paper applications and medical underwriting

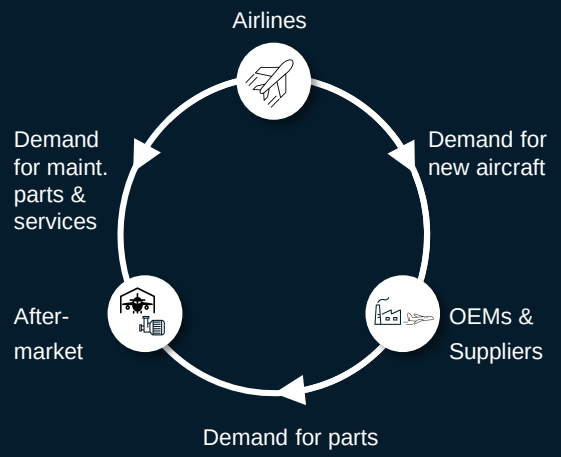
1. In last 30 days for selected sector indices

Source: IHS Market, McKinsey Global Institute, Subject matter experts, press reports, Corporate Performance Analytics, S&CF Insights, S&P Capital IQ

Commercial Aerospace

Current Impact

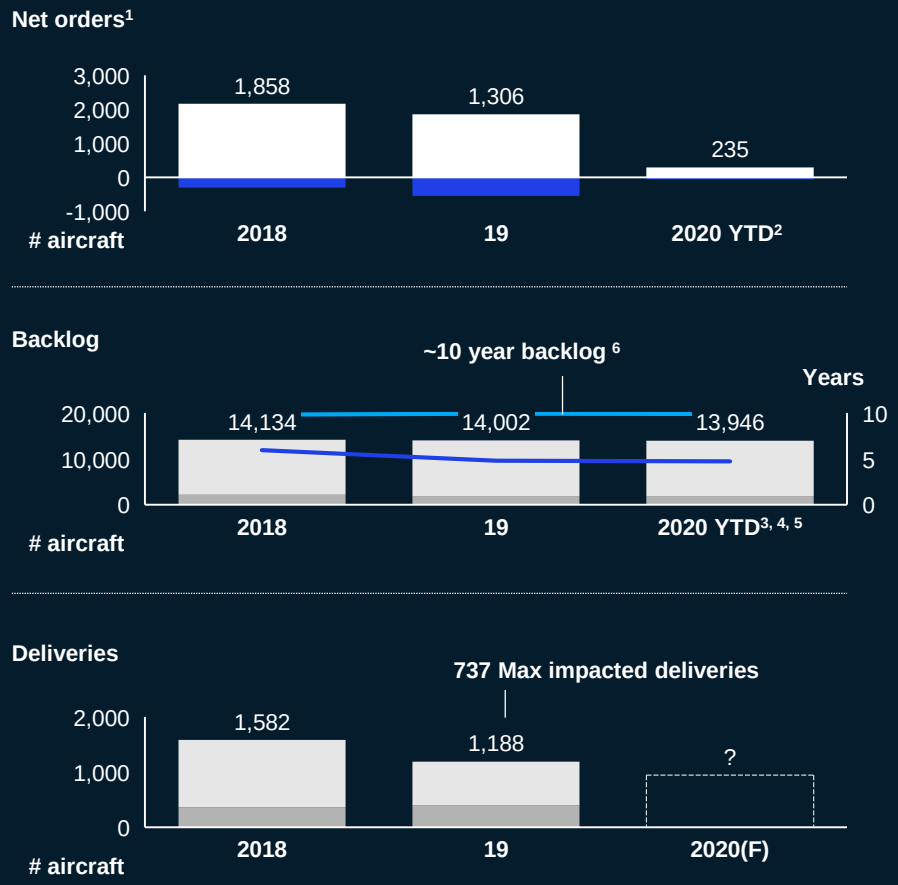
The underlying drivers for commercial aircraft equipment and services is driven by airlines; Airlines have significantly reduced capacity and grounded fleets



1. Narrow body orders declined 21% and wide body orders declined 18% from 2017 – 19. Narrow body cancellations grew 4% and wide body cancellations grew 5% during the same period
2. Boeing reported 18 gross wide body orders in Feb. and 43 737 MAX (narrow body) cancellations. Airbus reported 287 total gross orders and 13 cancellations as of 3/15
3. Assumes 2020 YTD backlog = '19 backlog – '20 cancellations YTD (56 cancellations YTD from Boeing and Airbus)
4. 2020 backlog years figures assume 2020 deliveries remain at 2019 levels
5. Calculates backlog years assuming no dip in 2019 and 2020 deliveries (deliveries remain at 2018 levels)
6. Actual backlog is 14.6 years (backlog shown in chart assumes no dip to deliveries in 2019)

Medium-term expectations (through 2020)

19-20YTD commercial aircraft orders, backlog, backlog years & deliveries



Early thoughts on evolution post-COVID

Intrinsic demand for aircraft likely disappears in 2020

Airline balance sheet concerns will lead to restructuring of order books; cash conservation efforts at airlines constrain capital set aside for delivery payments

Low fuel price expectations for the short-term could extend life of older assets, but not into major heavy maintenance check cycles

Government intervention may mitigate near-term risk of employee furloughs and supply chain insolvencies

Source: Cirium

Air & Travel

9/11[1], YoY change Sept 2000 vs. 2001 | **2008 Fin. Crisis[2],** YoY change Feb 2008 vs. 2009 | **Now,** YoY change Mar 2019 vs. 2020

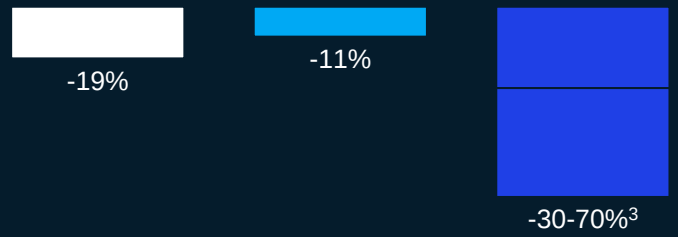
Current Impact

COVID-19 is an unprecedented crisis

The initial demand shock is worse than 9/11 or the 2008 Financial Crisis

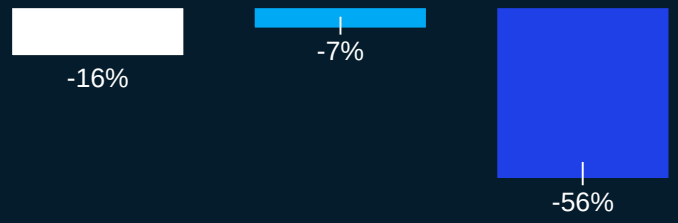
US airline capacity (ASM)

7x bigger drop vs. Fin. Crisis



US hotel occupancy

8x bigger drop in occupancy vs. Fin. Crisis



Medium-term expectations (through 2020)

70-80% Capacity reductions in April

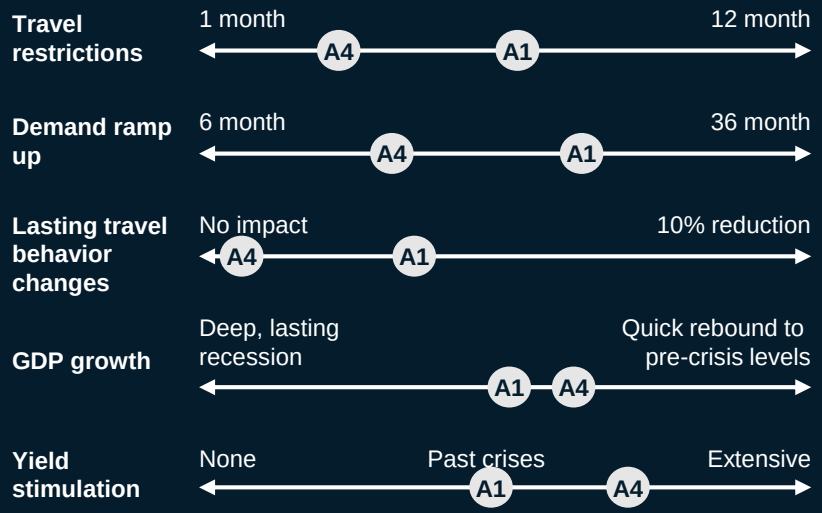
Flights to and from Europe, Middle East, and Africa were among the hardest hit ; Intra-regional flights within the Americas are least impacted to date, but likely to decline further

The two most likely scenarios for airline travel demand estimate **a 31%-45% reduction, and return to pre-crisis status quo over 1-2 year periods**:

A4 (virus contained, strong growth rebound)

A1 (virus resurgence, slow long-term growth)

Airline demand recovery dimensions for scenarios A1 and A4



Early thoughts on evolution post-COVID

Demand may not recover where it used to be vs. prior crises – as consumer confidence may be shaken and employers adjust work-from-home policies to support greater reliance on remote technologies

Government intervention though a stimulus package of either grants, loans or tax relief can supplement company cash flow to ensure there is not a liquidity crisis

Given low oil price expectations for the short-term, operating costs may be reduced but could also impact aircraft leading market

1. For capacity, load factor, and occupancy, YoY change of Sept 2001 | 2. For capacity, YoY change of Feb 2009, for airline load factor and hotel occupancy rate, YoY change of March 2009, for hotel stocks | 3. Based on latest capacity adjustment announced by AA/DL/UA | 4. Based on forecast from United Airlines

Source: USDOT T100, STR (Week of March 15-March 21), press search

Oil & Gas

Current Impact

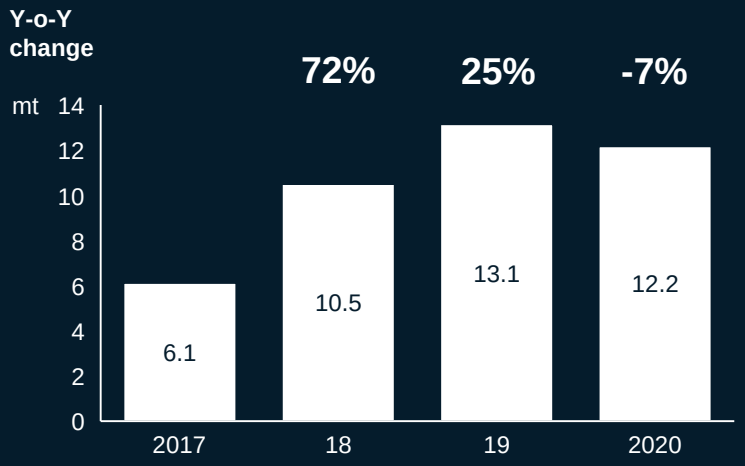
LNG

COVID-19 has affected regions that account for over 80% of global LNG demand; Chinese LNG imports (17% of global imports) fell by 7% year on year from January to March 2020, triggering Force Majeure clauses on contracts

Oil

Demand decline due to COVID-19 (5.4-11.4mbd for 2020 under A3 & A1 scenarios) and OPEC+ deal failure pushed oil prices under $30/ bbl. Short term demand destruction (potential to be 20mbd for April) could lead to storage constraints and regional prices to fall even sharper, while US drilling activity has already been cut (44 fewer rigs running, -6% in the last week).

Chinese LNG imports Jan 1st to Mar. 15th



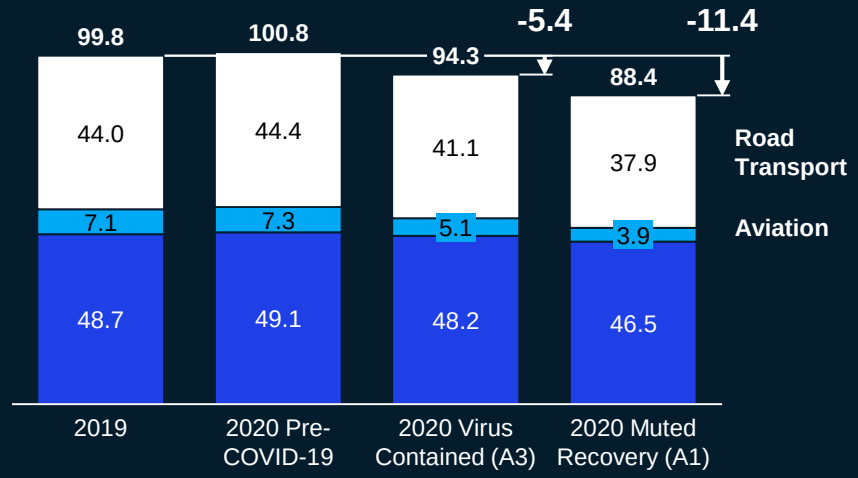
Medium-term expectations (through 2020)

Based on our global COVID-19 scenarios**, LNG demand could be reduced**

Global oil demand substantially reduced due to restrictions in road transport (e.g. in China, multiple European countries, and USA) and **capacity declines in airlines** across the world through Q2 and Q3 2020

Low short-term oil prices are expected to continue for most of 2020 unless we see a large supply cut. Production shut-ins could start to materialize in the short term and help to balance the market

Oil demand, Mbd



Early thoughts on evolution post-COVID

LNG suppliers will likely face prolonged shutdowns and cargo cancelations as the market tries to balance

Short term price dynamics that do not involve an OPEC+ intervention increase the likelihood of having an under-investment scenario play out in the medium-term, resulting in a new price up-cycle

Source: Bloomberg, press search, McKinsey Energy Insights Global Energy Perspective, McKinsey analysis

Contents

Leaders need to think and act across 5 horizons

1

Resolve

Address the immediate challenges that COVID-19 represents to the institution's workforce, customers, technology, and business partners

2

Resilience

Address near-term cash management challenges, and broader resiliency issues during virus-related shutdowns and economic knock-on effects

3

Return

Create a detailed plan to return the business back to scale quickly, as the virus evolves and knock on effects become clearer

4

Reimagination

Re-imagine the "next normal"—what a discontinuous shift looks like, and implications for how the institution should reinvent

5

Reform

Be clear about how the regulatory and competitive environment in your industry may shift

Nerve center

Managing across the 5Rs requires a new architecture based on a team-of-teams approach.

1

Resolve

Address the immediate social and mental challenges that COVID-19 represents to the institution’s workforce, customers, and business partners, and take basic steps to protect liquidity.

Resolve: Making hard decisions on immediate challenges

Resolve employee, customer, supply chain, immediate liquidity, and technology concerns

Private sector focus

	Employees	Supply chain	Customers
Emerging concerns	Are my policies working (e.g., safety, productivity)? How well? How do I adapt to new developments (e.g., longer closures of business)?	How do I revise demand planning based on the evolving outbreak?	How do I stay in touch with customers and remain relevant to them when they don't desire or need my services? How do I inspire loyalty in my customers?
Example actions	**Continuous re-evaluation of financial models:** stress-testing financial forecasts based on latest developments (e.g., longer than 2 week closures) and adjusting policies accordingly **Monitoring productivity:** Comprehensive set of KPIs being tracked via dashboards (e.g., focus on productivity vs. utilization) **Tracking incidence**: Clear reporting mechanism for suspected / confirmed covid-19 infections and database that tracks cases **Redeploying "idle" talent against areas of the business experiencing demand surges:** Making short term adjustments to workforce deployment to maximize productivity and minimize service disruption **Partnering with other companies to redeploy "idle" talent externally** for the good of the broader community	**Conduct scenario planning** to understand how inventory buffer changes in various disease scenarios **Task S&OP team to build 3-6 plans under a range of demand scenarios month** to **determine required supply** **Work with tier 1 suppliers to understand supply chain risks throughout all tiers;** complement with outside-in analytics where tier 1s do not have transparency **Account for all inventory (e.g., in transit, in warehouses, in spares stock) and calculate inventory buffer** Run **supply chain "stress tests" vs. supplier balance sheets** to understand when supply issues will start to stress financial or liquidity issues	**Demonstrate flexibility to customers** during times of hardship • Airlines: Major airlines are offering change/cancel flexibility. Most are also allowing passengers to reseat themselves on the plane in accordance with physical distancing, Going out of their way to **keep customers and employees safe** regardless of impact to balance sheet • Hotels in Europe and Asia are providing "quarantine" service (e.g., room reservation with nobody next door) • Hotels are live streaming hotel room housekeeping to show how thorough they are cleaning their rooms between guests. Demonstrate **commitment to healthcare** • Car rentals are offering free rental cars to NYC healthcare workers • Furniture distribution centers are being repurposed as testing centers for NHS workers Other examples of companies **being 'agile' in attracting customers** • Hotels are offering point compensation for guests who purchased pre-paid non-refundable reservations. • Rideshare companies are pivoting to delivery

Employees: Companies should invest and prioritize to protect the safety and morale of employees unable to work from home

Private sector focus

Non-WFH employees face a unique set of concerns…

Perceived unfairness: having to continue going into work while other employees stay home with their families

Safety risk: significant increase in potential exposure to disease (e.g., commute, customers and other employees in the workplace)

Perceived value: Don't feel as valued by company and that their safety is not prioritized

Fear of illness: In addition to clinical harm (e.g., fever, body aches), fear of being isolated from their families if ill

However, best-in-class companies are finding new ways to address employee concerns while protecting them from unnecessary risk:

Major US retailer	Food delivery companies	Leading UK retailer	Leading Italian banks	Global coffee shop retailer
Flexible work policies including relaxing absenteeism policy (i.e. allowing workers to stay home for personal reasons)	**Minimizing contact** between deliverers and customers (e.g., cashless payment only, leaving bags at door, all employees provided masks and gloves)	**Extending benefits** to include back-up child and elderly care (up to 25 days) and mental health benefits (e.g., teletherapy sessions)	**Limiting operating hours** for all branches with access granted only upon pre-arranged appointment to minimize contact and increase sanitization time	**Offering 14 days of "catastrophe pay"** for US workers exposed to COVID-19, over 60, pregnant, or have underlying health issues (in addition to existing sick pay)

Source: company websites, press search

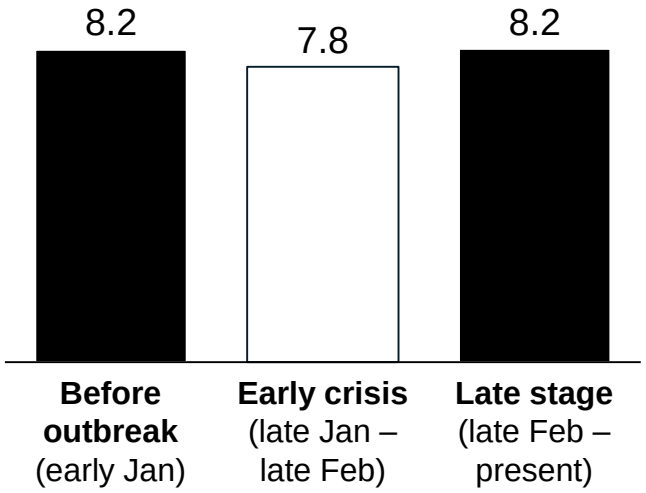
Employees: We have observed 4 key levers to maximize engagement & productivity of work from home colleagues

Private sector focus

A study China demonstrated a decrease in energy level during the pandemic

Energy Value

"What is your energy level from 1-10?" asked to 1,300 employees across 50 companies in China spanning 8 sectors



Respondents to the survey attributed the declining energy value to 3 primary factors

- **Blurred boundary between work and life**
- **Anxiety deepening as the epidemic unfolded**
- **Telecommuting unsuitable for current work flows**

Energy levels started to improve as increasing normalcy was established aided by 4 levers that companies used

People
- **Provide psychological safety** (e.g., delegate decision making powers, role model empathy)
- **Communicate practical WFH tips** (e.g., family communication, physical and mental need mgmt.)

Structure
- Define **clear objectives and key results** (OKRs) to effectively set and communicate goals and outcomes
- **Allow high degree of autonomy** in decision making with collaboration across BUs

Process
- **Establish a clear cadence** (e.g., pre-scheduled daily and weekly meetings, frequent check-ins)
- Define **clear and integrated workflows,** align strategic goals and clarify roles and responsibilities

Technology
- Leverage a **suite of digital tools / new media** to address specific work needs
- Setup an **effective ergonomic, digitally enabled remote working environment** to ensure productivity

Source: McKinsey GC Org Team

Customers: Set up agile Rapid Revenue Response squads to drive progress during the pandemic for B2B & B2C companies

Private sector focus

Phase 1: Reset and calibrate

- **Understand which trends and pockets are growing** by analyzing customer insights, sentiment, and demand signals
- **Diligence all your current commercial activities** - from sales to communications to expenses
- **Align on value proposition** and what truly aligns to the immediate needs of your customers or prospects

Phase 2: Activate key levers

Prioritize **B2B** commercial levers to pursue:

- **Sales and channel:** Build remote selling capabilities, re-allocate resources
- **Pricing**: reset pricing / discounts to new demand curve; consider contract flexibility where relevant
- **Marketing**: Reinvest marketing spend across opportunities that will drive highest ROI growth
- **Product / CX**: Adjust offerings to meet customers' needs; match with demand signals
- **Commercial cost**: Stop spending quickly in discretionary areas, re-allocating rapidly

Prioritize **B2C** commercial levers to pursue:

- **Sales and channel:** Remote customer lead gen and activation
- **Pricing/Promo:** Reset to new demand curve
- **Marketing**: Shift to high-traffic channels; adjust customer comms, tone, and offers
- **Product:** Focus SKUs; match with demand signals
- **Cash:** Manage discretionary spend, both working and non-working, re-allocating rapidly

Phase 3: Read and respond

- **Evaluate performance of tactics activated**, likely re-setting ROI measurement approach
- **Continually optimize tactics** that work
- **Align on next wave of commercial tactics** by integrating new customer insights and market demand signals

Repeat and optimize: "Activate key levers" and "Read and respond"

Source: McKinsey Marketing & Sales Practice

Supply chain: Actions to consider in response to COVID-19

Private sector focus

Immediate (1-4 weeks)

Understand exposure

Estimate how demand changes across customers

- ❑ Leverage **direct communication channels with direct customer** when determining demand signals
- ❑ Use market insights/external databases to **estimate demand for customer's customers**
- ❑ **Task S&OP team to build 3-6 plans under a range of demand scenarios month** to **determine required supply**

Determine how supply will be impacted and understand key risks

- ❑ **Work with tier 1 suppliers to understand supply chain risks throughout all tiers;** complement with outside-in analytics where tier 1s do not have transparency
- ❑ **Account for all inventory (e.g., in transit, in warehouses, in spares stock) and calculate inventory buffer**
- ❑ **Conduct scenario planning** to understand how inventory buffer changes in various disease scenarios
- ❑ Run **supply chain "stress tests" vs. supplier balance sheets** to understand when supply issues will start to stress financial or liquidity issues
- ❑ **Assess whether border closures or restrictions will disrupt supply chain**

Take action to address anticipated shortages

Evaluate any option for new supply sources

- ❑ **Identify alternative sources** if supplies are affected and accelerate exploration of additional options
- ❑ **Determine possible geographies and supplier shortlists** in case alternate supply is required
- ❑ **Identify ways to expedite qualification process** and/or insource for components where supply is threatened
- ❑ Contact authorities in areas where **customs clearance could become a challenge**
- ❑ **Determine what portion of supply can be swung to another site** if shutdown persists **based on sourcing strategy** (single, dual, multi)

Revise production plans as required based on:

- ❑ Expected supply shortages
- ❑ Products in most consumer need, with highest margin, or and highest opportunity cost / penalty production

Understand robustness of current supply chain logistics

- ❑ Estimate **available logistics capacity; pre-book air freight[1] / rail capacity** as required by current exposure
- ❑ **Collaborate** with all parties **to jointly leverage freight capacity**, **new/alternate supply** sources, etc.

Other actions

- ❑ **Watch for extending lead times** to gauge performance and capacity against supplier promises
- ❑ **Use after sales stock as bridge** to keep production running if needed

Protect employees and suppliers

- ❑ **Work with supplier to source personal protective equipment for production lines** operating in affected markets (e.g., glasses, gloves and masks)
- ❑ Engage with crisis communication teams to **clearly communicate to employees** on infection risk concerns (e.g., disseminate facts about virus from credible source) and work from home options
- ❑ **Consider short-term stabilization for suppliers** (e.g., low-interest loan) to allow for a faster restart

Mid-term (4-12 weeks)

Continuously improve material supply stability

Identify alternative options based on anticipated demand

- ❑ Evaluate **alternative sourcing options for all the materials impacted** – availability of suppliers, additional cost due to logistics, tariffs, estimate of price increase of the components
- ❑ Enhance the **demand verification process** to correct inflated demand to mitigate the bullwhip effect

Provide support for smaller suppliers

- ❑ Provide continuous **support for mid-small size tier 2-3 suppliers** in financial troubles
- ❑ Assess **regional risks** for current and backup suppliers

Kick off designing resilient supply chain for the future

Codify & digitize processes and tools

- ❑ **Codify the processes and tools** created during the crisis management as formal documentation
- ❑ **Digitalize process and tools** to integrate demand, supply, and capacity planning

Develop systems to "bullet proof" supply chain

- ❑ Convert war room into a **reliable supply chain risk management process**
- ❑ Ensure stakeholders **address vulnerabilities** across all parts of the supply chain
- ❑ Trigger the new supply network **design for resilience**

Build collaborative relationship w/ ext. partners

- ❑ **Work with government to ensure industry can ramp up as quickly as possible** as crisis resolves
- ❑ **Actively engage investors** and other stakeholders to build transparency on the situation and get help

1.Given costs, airfreight might not be an option for many industries; availability is already limited

2

Resilience

Address near-term cash management challenges, and broader resiliency issues

6 steps toward end to end resilience plan

01

Identify and prioritize key risks

Identify and prioritize key macro, sector and company idiosyncratic risks based on exposure and impact

02

Develop tailored scenarios

Develop company specific scenarios based on the range of outcomes of the highest priority risks

03

Conduct stress testing of financials

Stress test the P&L, Balance Sheet, Statement of Cash Flows to assess and frame the potential gaps for planning

04

Establish portfolio of interventions

Identify an end to end portfolio of interventions and trigger points

05

Set up a cash management dashboard

Improve cash transparency and implement tighter cash controls to mitigate downside scenarios

06

Build the resilience dashboard

Build the dashboard of key leading indicators to monitor that can be dynamically updated

1&2: Efforts require continuous re-evaluation of financial and market forecasts and corresponding actions

1. Identify key risks

Key activities

- Understand the **impact of key macroeconomic variables** (e.g., GDP, unemployment rate) on performance of your of PnL (e.g., revenue and cost)
- Impacted PnL variables could include:
  - **Volume:** consumer demand correlated with GDP
  - **Cost:** Commodity price evolution (e.g., oil and gas, food index) correlates with COGS
  - **Price:** housing prices and inflation correlate with price customers are willing to pay
- Refine a final list of no more than ~20 macroeconomic variables with **quantified impact** to key PnL items

Sample output

Manageable/ Remote · Major/ Possible · Critical/ Probable

	Key risks identified	Impact	Likelihood
1: Macroeconomic risks	Economic (incl. currency) volatility	●	●
	Downturn/recession in key markets (including level of disposable income, GDP growth, unemployment)	●	●
	Inflationary pressures	●	●
2: Market/ commodity price risks	Oil prices	●	●
	Commodity prices of key raw materials	●	●
	Indirect tax increases and/or significant restrictions on marketing	●	●
3: Other/ Idiosyncratic risks	Failure to shape or participate in critical industry/consumer trends or consolidation eroding competitive position	●	●
	Non-compliance with areas of higher regulatory scrutiny	●	●
	Failure to manage key sustainability risks	●	●
	Failure to deliver value from acquisitions	●	●
	Cyber threats against most important digital assets	●	●
	Unstable or hostile political environments	●	●
	Data privacy breach harming trust/reputation	●	●
	Changes in international tax environment	●	●

2. Develop tailored scenarios

- **Develop scenario narratives** for Baseline and ~2-3 adverse scenarios, with overlay for duration and magnitude of Covid-19 near term shock
- **Contextualize scenarios with assumptions** on macroeconomic variables (e.g., in worst-case GDP declines 20%)
- For each scenario, **link macroeconomic projections back to PnL** (e.g., best-case scenario includes 10% drop in demand, 20% drop in price, and 30% drop in COGS)
- Ensure scenarios capture strategic, financial and operational risks with consideration of 2nd order impacts

Increasing severity →

		Baseline	Adverse 1: […]	Adverse 2: Adverse 1 + […]	Adverse 3: Adverse 2 + […]
Growth	Global GDP	Growth rises to 2.5% in 2017	Growth slows to just over 2.2%	Growth slows to just over 2.2%	Same as Adverse 2
	Country specific	[…]	[…]	[…]	
Commodity Prices	Oil	Prices rise by ~70% by 2021	Prices rise by ~60% by 2021	Prices rise by ~60% by 2021, but are more volatile	
	[…]	Prices rise by 10%	Prices rise by just under 9%	Prices more volatile due to contagion	
Employment Costs	US	Wages flat	Wages fall in real terms	Wages fall in real terms	
	[…]	Wages flat	Wages flat	Wages fall in real terms	
Exchange rates	Major currencies	Euro and Pound weakening relative to Dollar	Near term Euro and Pound appreciation relative to Dollar	Near term Euro and Pound appreciation relative to Dollar followed by substantial weakening	
	Emerging market currencies	Stable	Stable	Stable	
[…]		No	No	No	[…]

Source: McKinsey Resilience tribe

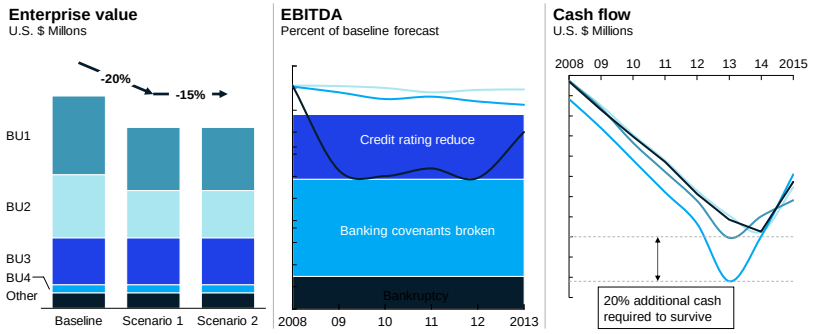
3&4: Efforts require continuous re-evaluation of financial and market forecasts and corresponding actions

3. Conduct stress testing of financials

Key activities

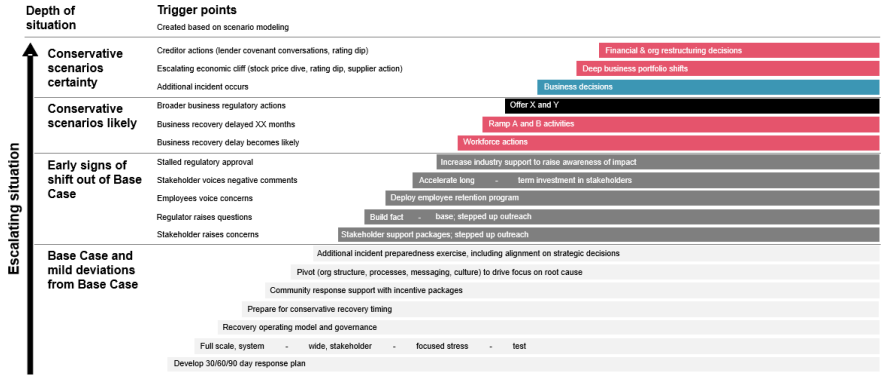
- For each scenario,
  - assess impact on the financial statements (P&L, Balance Sheet and Cash Flows)
  - assess gap relative to Baseline
- Run simulations at Corporate level to assess range of outcomes to assess impact on credit quality, cash and liquidity
- Run 'reverse stress-tests' to determine conditions for credit/liquidity crunch

Sample output



4. Establish portfolio of interventions

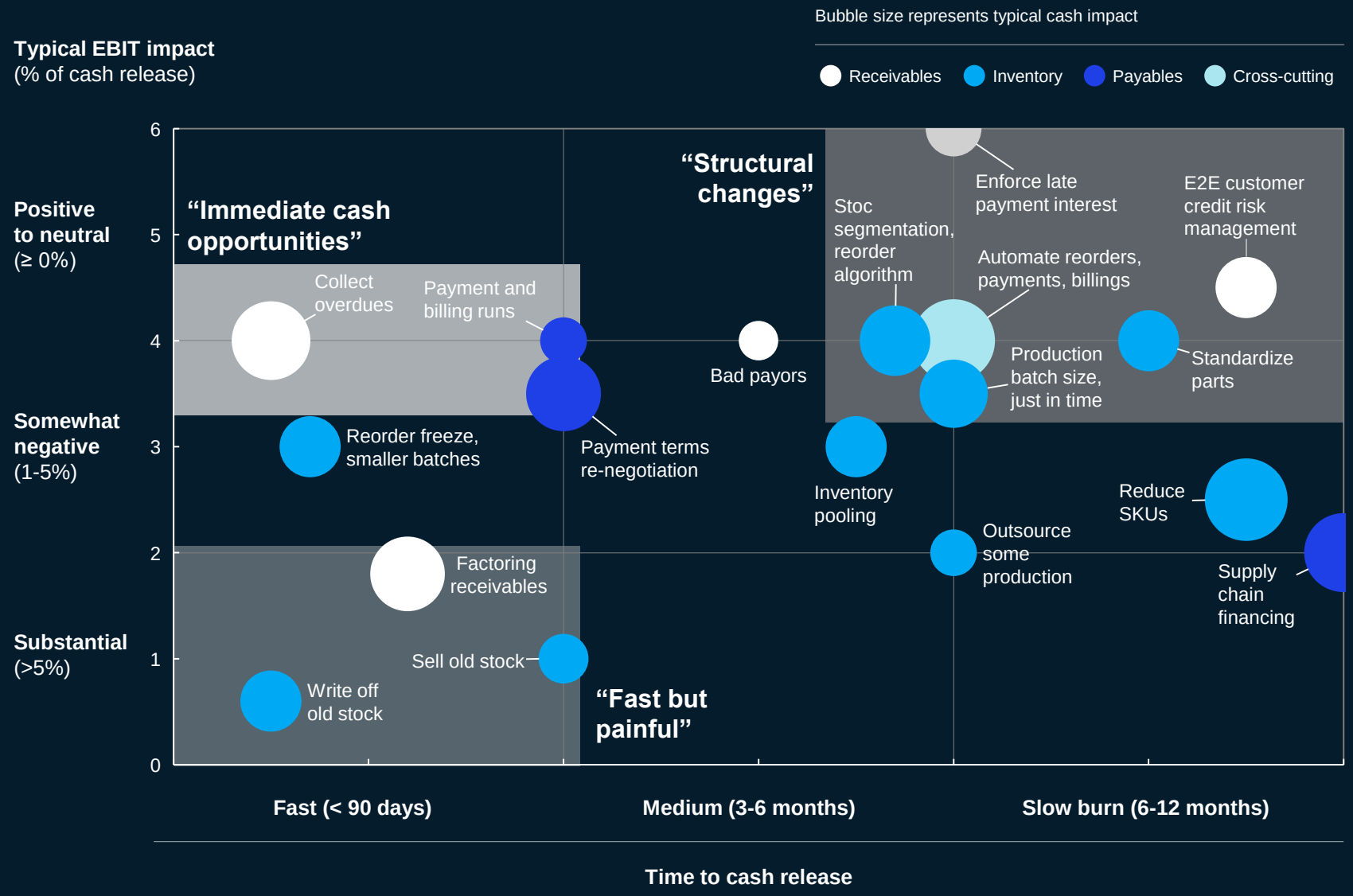
- Prioritize critical areas of **exposure** and areas of **lower/risk uncertainty**
- Define & size **portfolio of potential interventions** (across operations, supply chain, capital, targeted M&A and divestitures and customer engagement)
- Launch quick wins on **immediate stabilization** (supply and demand-side) related to Covid-19
- Identify which are “no regrets” vs. trigger based and get pre-approval for higher risk moves, with clear agreement on conditions for activation



Source: McKinsey Resilience tribe

5: Example cash management dashboard: Prioritization of initiatives related to cash

Not Exhaustive



Source: McKinsey Transformation

6: Example resilience scorecard: Outside-in perspective & select benchmarks

"Inside assessment" would reveal "strengths & weaknesses" in Co 1's resilience

DISGUISED EXAMPLE

	Marker of resilience	Metric (outside-in metrics)	Metric performance					Rank
			Co 1	Co 2	Co 3	Co 4	Co 5	Co 1
Through cycle interventions: Revenue	Track record of growth	Short-term Sales growth, 2018-2020 CAGR %	-10%	5%	10%	-5%	5%	
		Long-term Sales growth, 2013-2020 CAGR %	-5%	5%	10%	5%	15%	
Through cycle interventions: Costs	Starting point of cost structure & track record of margin improvement	Gross Profit/Sales %, 2020	25%	10%	30%	15%	20%	
		SG&A/Sales %, 2020	6%	7%	9%	8%	5%	
		R&D/Sales, 2018-2020 avg	10%	8%	4%	6%	2%	
		Long-term Adj EBITA margin delta, 2020 vs 2013 %pts	2%	-5%	10%	-5%	2%	
	Long-term TRS track record	Long-term TRS, 2013-2020 avg (also revenue contribution indicator)	10%	-5%	10%	5%	25%	
Sharp Digital	[...] N/A outside-in measurement							
Unlock Balance Sheet	Healthy Balance Sheet with sufficient headroom	(Net debt and pension + OPEB) /market cap, 2020	0.5	0.2	(0.2)	(0.5)	0.2	
		(Net debt and pension + OPEB) /EBITDA, 2020	1.5	0.5	(1.0)	(2.0)	0.5	
Band of Leaders	C-suite and Board having diversity of background and relevant experience of leading businesses through a downturn	% of C-suite leaders who have been in C-suite roles during last recession	50%	40%	20%	50%	45%	
		% of Board members who have been CEOs of F-1000 companies during major crisis events/ downturns	30%	20%	0%	0%	10%	
		% of C-suite leaders who have a different background from the CEO	100%	70%	85%	75%	30%	
Organization Simplification	Lower Org complexity	FTE per Sales (# Employees per $M USD), 2020 (outside-in indicator)	1.0	1.2	1.5	1.5	1.8	
Resilience Nerve Center	Early, disciplined decisions in the past – indicator of a nerve center driven approach	Short-term change in Adj EBITA, 2020 vs. 2018 %pts	0%	-5%	5%	-5%	5%	
		Change in (Net debt and pension + OPEB) /EBITDA, 2020 vs. 2018 %	0%	50%	-10%	90%	-50%	

Source: McKinsey Resiliency Tribe

3

Return

Create a detailed plan to return the business back to scale quickly

There are 6 building blocks for a successful Return

Restarting supply chain

Secure alternative supply sources (if needed) to provide materials to industry

Separation of regions

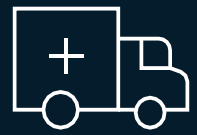
Categorize regions based on severity to manage return based on region-specific situations

Testing & transparency

Build transparency on the state of infection in local populations so the “healthy” cohort can return to work

Infection reduction norms

Ensure conformance to transmission reduction norms in professional and public life



Health system capacity

Ensure healthcare capacity, preventing “drift” while ramping up surge capacity for additional intervention windows as needed

Rehiring and retraining

Prepare workforce to meet the new demands of the “next normal”

These building blocks should be rolled out and sequenced according to local realities

These building blocks can be sequenced for a return plan

SAMPLE PLAN FRAMEWORK – MEANT FOR ILLUSTRATIVE PURPOSES ONLY

Phases

	Partial continuation	Phased reopening	Fiscal recovery	Recovery and preparedness
Description	Containment phase prior to thinking about any return to the "next normal", with the primary goal of returning employees to the office	Once diseases have been contained, strategically return safe portions of employees while avoiding relapse into Phase 1	Enable the lifting of all physical distancing measures once disease is no longer a large threat to the workforce	Period of investing in infrastructure to rebuild organizational readiness and resilience for future pandemics
Phase indicators	**Disease proliferation:** Cases plateauing, of cases occasionally unknown, etc **Confinement of employees & customers in place:** Shelter-at-home regulation in place, majority of employees WFH	**Regulatory approval:** Employees allowed to return to work **Consumer demand:** Steadily increasing **Disease containment:** Ability to verify healthy workers,, surrounding community healthy, disease on the decline, hospitals not overstretched	**Consumer Demand:** Risen to pre-crisis levels **Customer behaviors:** Shifting back to "next normal expectation" **Supply chain:** Limited disruption **Employees: F**eel safe and protected returning to workplace	**No more firefighting** of COVID-19 disease implications Corporate **desire to mitigate risk** and prepare better for future pandemics
Sample actions that business can take	Maintain **physical distancing** of workforce (e.g., remote working facilities enabled) **Clear protection guidelines** with protective equipment provided for employees that are required to be present at workplace Clear process for **tracking incidence** in workforce and notifying at-risk employees	**Reassurance measures** at workplace (e.g. temperature checks prior to entering workplace) **Safety and protection policies** (e.g., mandatory masks/gloves to be worn by all employees, regular deep-cleaning of work environment, physical distancing in the workplace) Split the business for **staggered return to work** (e.g. different teams returning at different times)	**Targeted outreach to customers** to improve comfort and encourage pre-crisis behavior Require / incentivize employee vaccination for COVID once vaccine is obtained **Clear safeguard protocols** for any employees that display illness (mandatory work from home) Continued regular **deep-cleaning** of office space	Develop more **robust WFH policies** and infrastructure for larger part of workforce **Reduce # of large gatherings** to only when necessary **Reduce travel requirements** for roles

Source: National Coronavirus response: A road map to reopening, McKinsey analysis

4 5

Reimagination and reform

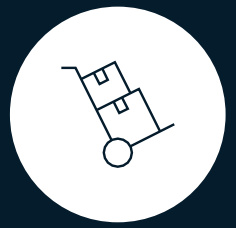
Re-imagine the “next normal”—what a discontinuous shift looks like, and implications for how the institution should reinvent.

Be clear about how the regulatory and competitive environment in your industry may shift.

The “next normal” will be re-imagined across multiple pillars

Consumer

“What will change for consumers and shoppers?”

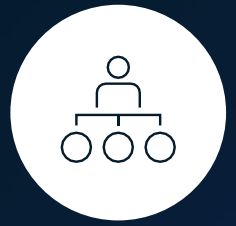


Supply chain

“Will supply chains models shift with the increasing focus on resiliency and digitization?”

Government/ regulation

“How could health and the overall economic regulations be impacted?”



Organizational

“How will workforce norms & operating models adapt?”

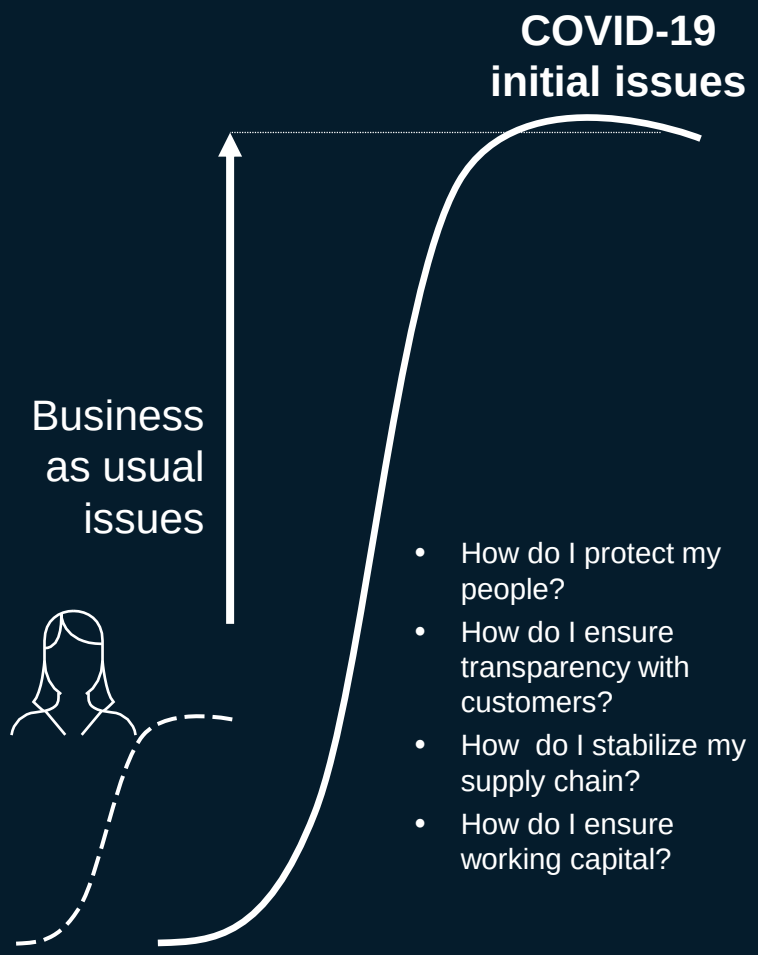
Corporate valuation

“How will valuations shift given corporates need to invest in resilience capability?”

Nerve center

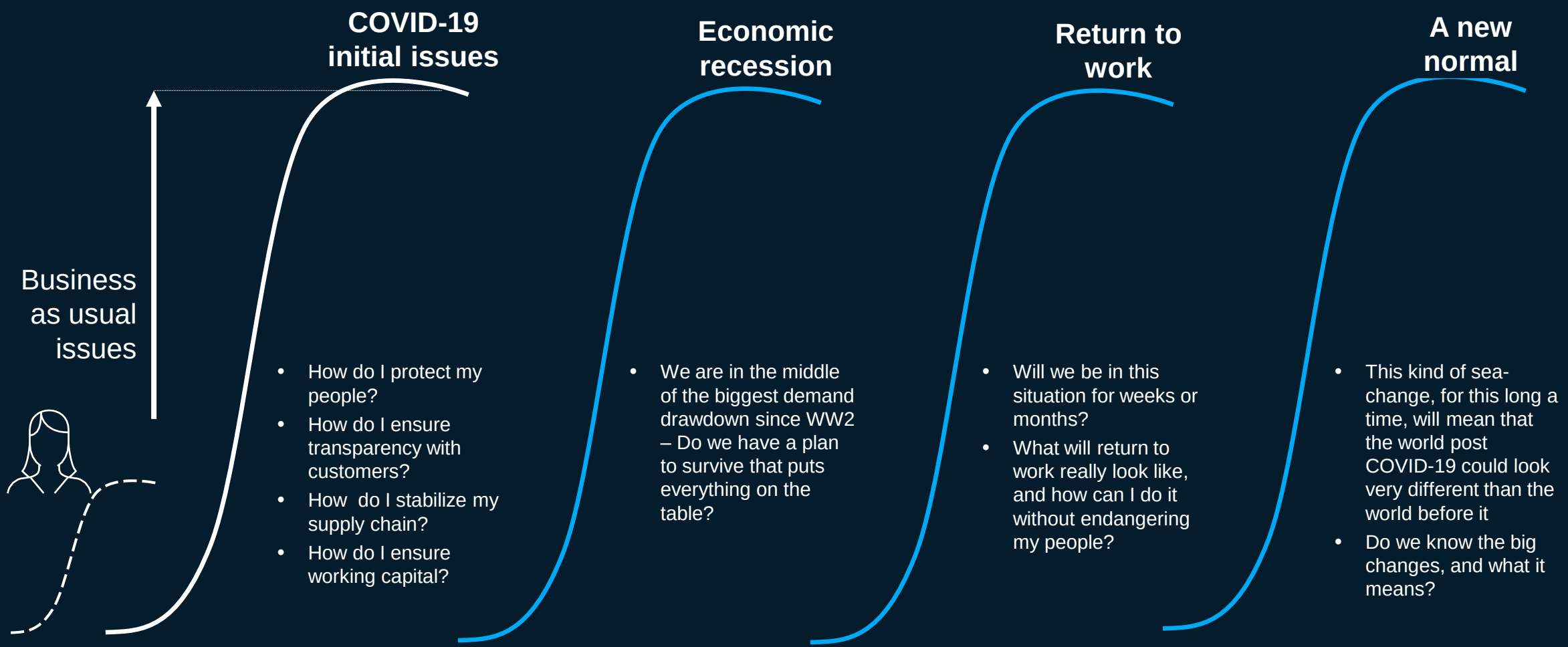
Managing across the 5Rs requires a new architecture based on a team-of-teams approach.

Many leaders are experiencing a big increase in COVID-19 issues…



- How do I protect my people?
- How do I ensure transparency with customers?
- How do I stabilize my supply chain?
- How do I ensure working capital?

…but there is a tsunami of ever-more-complex issues that lie ahead



When facing such a tsunami, companies make four mistakes

Inadequate Discovery

Optimism bias, lack of adequate ‘sensing mechanisms’ (e.g., escalation failures), over-reliance on past patterns, risk rationalization

Industrial manufacturer: pushed out fix timelines for failed product more than 12 times. Top management optimism bias was called out multiple times by regulators, politicians and other observers

Constrained Solution Design

Many crises have a technical core, which needs new solutions to be invented (e.g., BP top hat) or imported anew into the sector/ geography

Energy company: Many public failures to fix process safety issue before success. Challenge was that the fix needed new engineering innovation

Slow or Bad Decision Quality

Groupthink, political pressures, high-emotion situations; Unfamiliarity – pattern recognition-driven thinking fails; Desire to wait for more facts slows response

Challenger disaster: NASA engineers pressured Thiokol to change their ‘no-launch’ recommendation (Thiokol shifted their stance to satisfy their biggest customer) in-spite of a well-understood technical failure on O-rings.

Inadequate Delivery (Execution failure)

Chaos during disruptions frequently translates to lack of accountability and direction, ‘operations addiction’ on the part of top management, leading to failures of execution

Automotive manufacturer: Was criticized for multiple aspects of recall activity (e.g., unclear terms and conditions, inadequate call center staffing, other challenges)

The central question

How can I increase my organization's capacity and speed to respond decisively to today's issues…

…while uncovering the truth about the future, and shoring up defenses to meet it?

Nerve centers are a specific organizational construct, meant for institutions that are facing existential, high-velocity disruptions, that are designed to address this question

How Nerve Centers achieve this – "team of teams" made of 4 teams

Deliver, Decide, Discover, Design

Deliver quickly & flawlessly on priorities provided by "Decide" team

Team 1 – Deliver

Execution team(s)

Team 3 – Discover

Scenario Planning team

Evaluate possible scenarios – near-term to long-term & derive implications; craft one planning scenario for other teams

Present focus → **Plan Ahead**

Ensure "Deliver" goals are current & progress is occurring; decide whether to trigger a strategic move

Team 2 – Decide

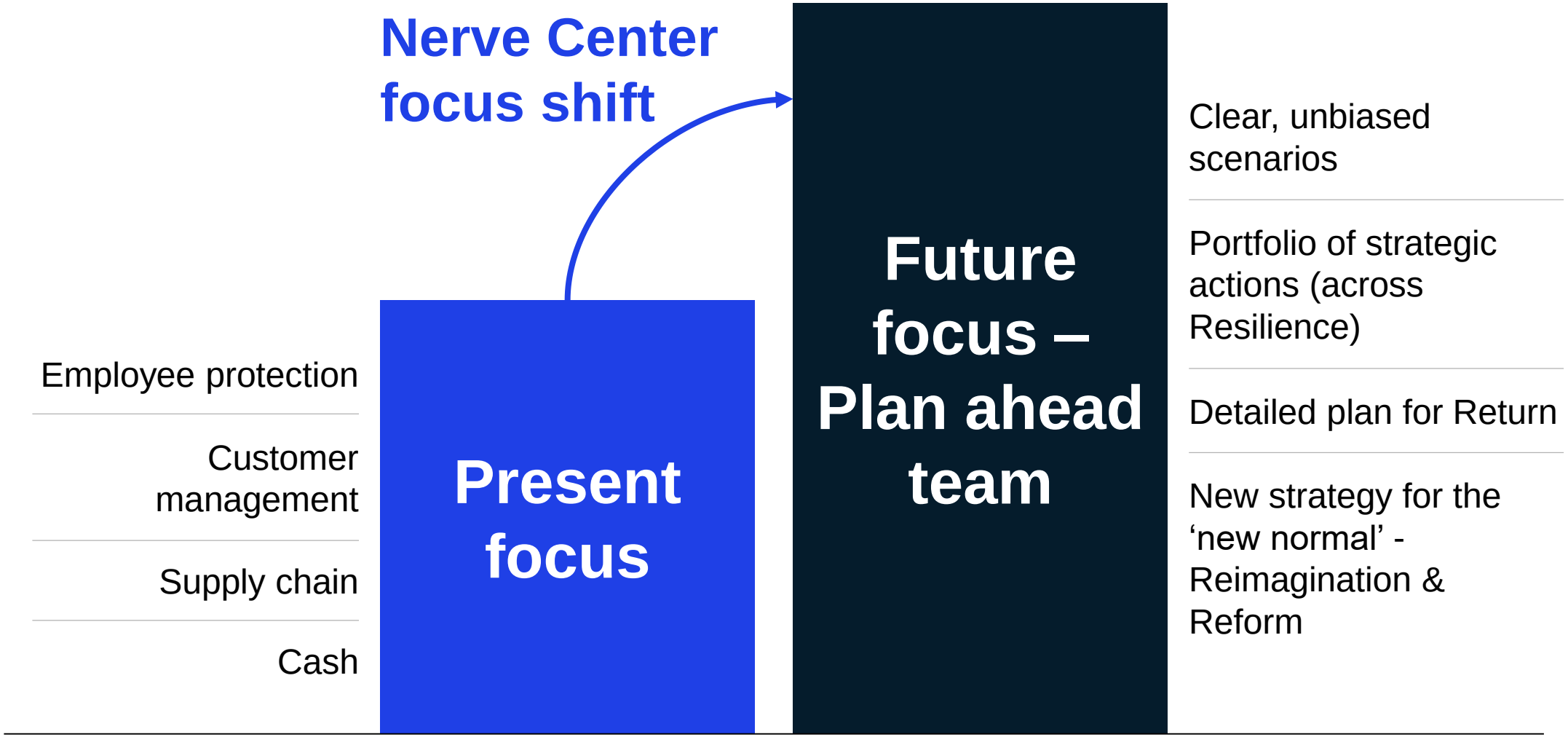
Integrated Operations team

Team 4 – Design

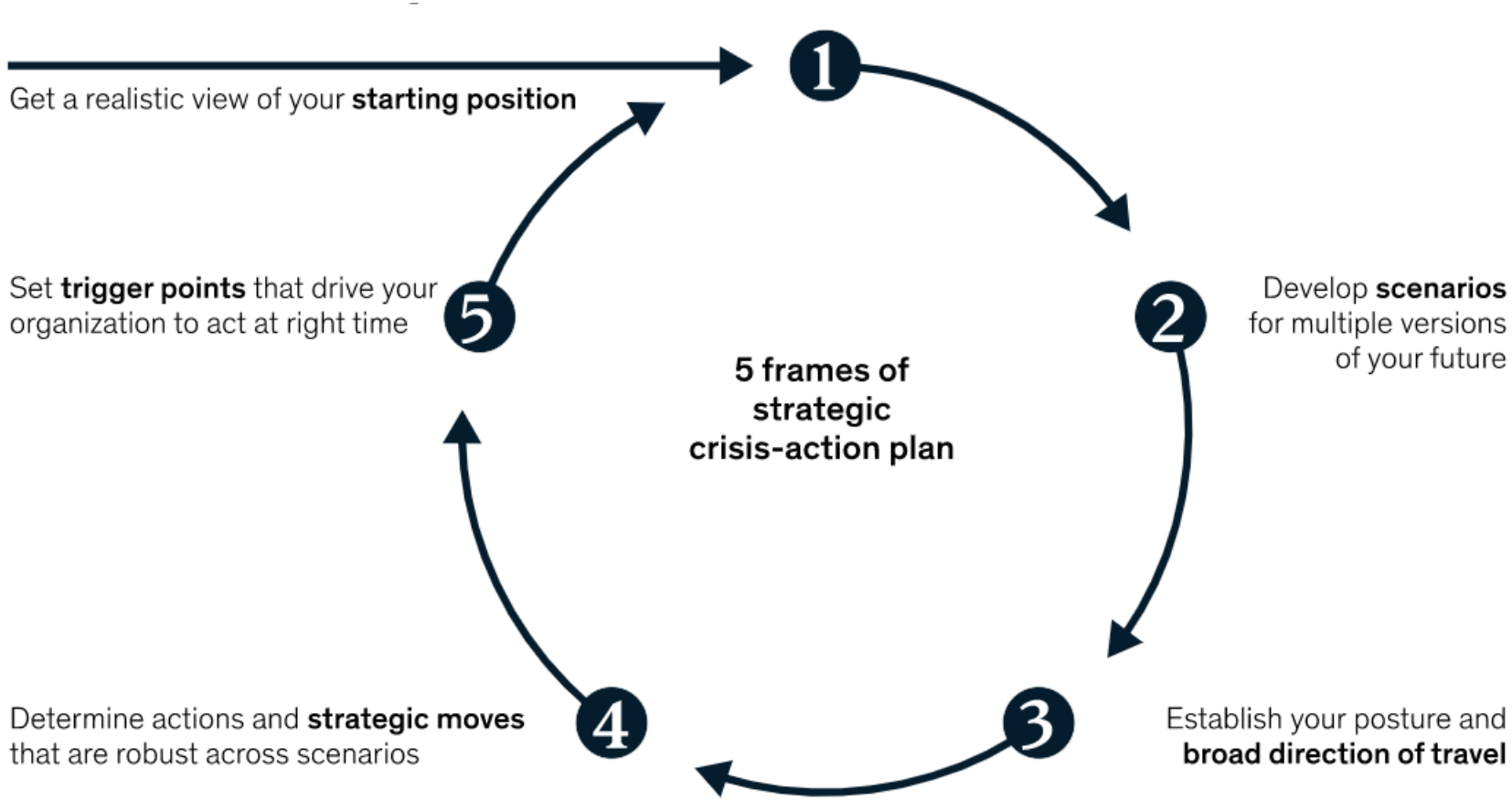
Strategic Moves team

Craft a portfolio of strategic actions with clear trigger points

Nerve Center needs to evolve from present focus to include plan ahead teams



A plan ahead team can offer quick responses to rapidly changing circumstances using 5 frames



Please refer to this link to read the full article

Source: Getting ahead of the next stage of the coronavirus crisis, April 2020

Nerve Center design is based on military command principles

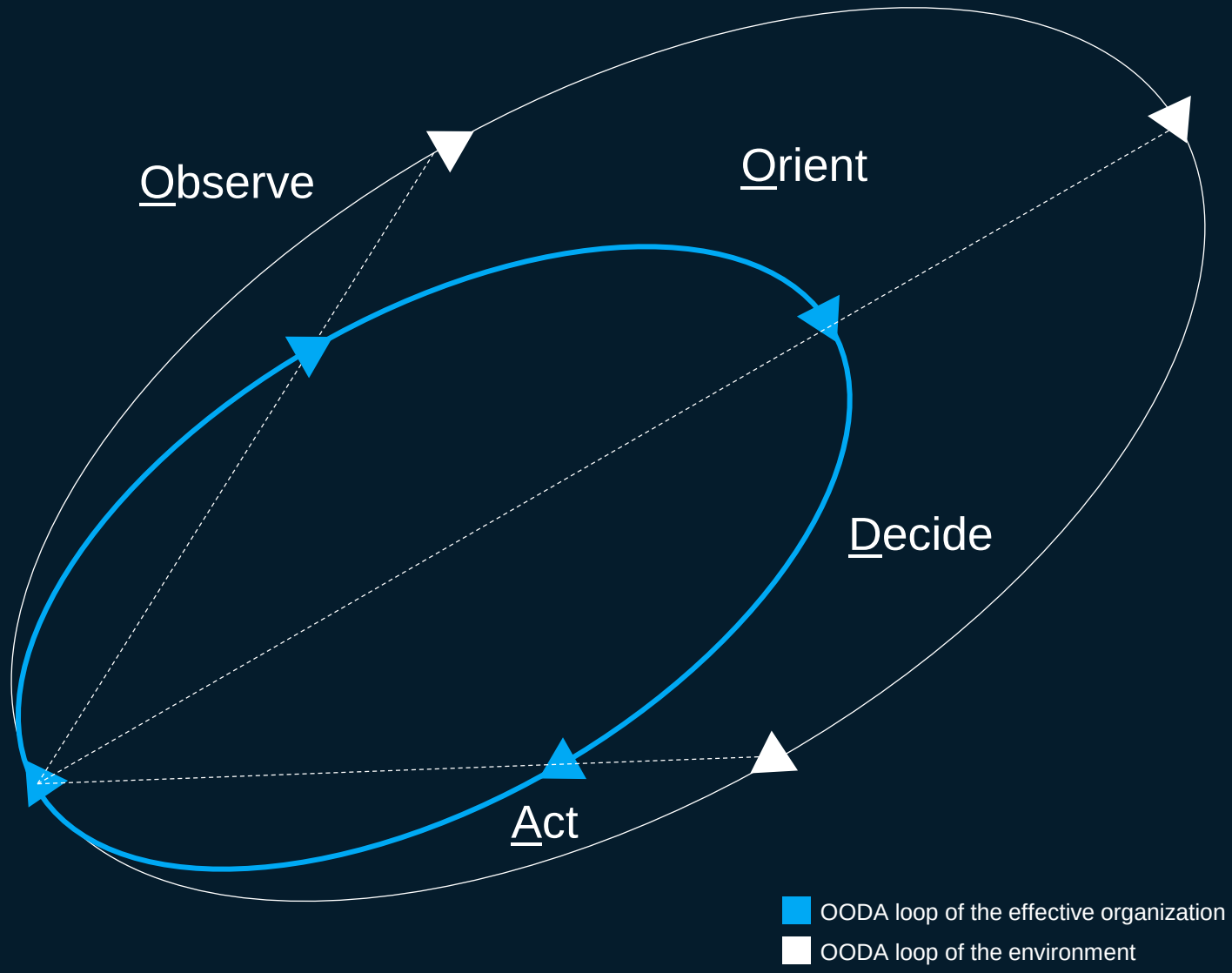
Core concept: Create an organization that can Observe, Orient, Decide and Act faster than the environment

John Boyd's OODA loop

John Boyd was a Colonel in the US Air Force, whose ideas on the art of war revolutionized US military thinking, especially after the Vietnam War

Boyd's key concept: The OODA loop.

The key to victory is to be able to make appropriate decisions faster than the rate at which the environment evolves



Appendix

Reimagination & Reform details

Consumer: The next normal

Degree of shift in Consumer behavior, Regulation, Organizations, and Supply Chain all drive a “next normal”

Illustrative “next normal” of Consumer behavior

Shifts in loyalty – altered baskets due to availability, health attributes, brand (re)-trial

A fresh reset of the price/value relationship – economic downturn shifts demand to lower price points and private label

Home recast as the coffee shop, spa, restaurant, and more with ease and convenience – consumers find convenient and less expensive ways of “getting the job done”

Blending of demographic “norms”– millennials increasingly “settling down” and cooking, men doing more out of home shopping leads to brand, category and shopper behavior shifts

The return of center store and large brands – leveraging familiarity, availability backed by at scale supply chains

The e-Boomer (really e-everyone) – Online as a destination for stock-up and grocery/c-stores for the fill-in / fresh, leading to a seismic channel shift

High times for the lower end – Dollar, discount and supercenters further benefit from price and stable supply

Re-luring to retail – Outside grocery, declines in brick and mortar require new tactics to re-engage when restrictions are lifted

De-urbanization – reverse in the trend of recent years following the shelter at home experience

Sustainability remerging, redefined – simultaneously meeting environmental and public health goals

Source: McKinsey Consumer Practice

Supply chain: The next normal

Degree of shift in Consumer behavior, Regulation, Organizations, and Supply Chain all drive a “next normal”

Illustrative “next normal” of supply chain

Levers for Organizations		Degree of change		
		Minimal		Substantial
Supply Chain	Resilience	Unchanged focus on ‘efficient’ supply chain, with lowest cost today as primary goal	Primarily optimized for lowest cost with critical components sourced to ensure resiliency across scenarios	Fully quantified the risk of supply chain design to earnings, and optimized trade off between earnings today and earnings resilience
	Digitization	Status quo with limited digitization and lack of visibility across supply chain	Some digitization with transparency available at key points but no end to end visibility	End to end digitized supply chain with full visibility across inventories and products

Source: McKinsey Supply Chain Practice

Regulations: The next normal

Degree of shift in Consumer behavior, Regulation, Organizations, and Supply Chain all drive a “next normal”

Illustrative “next normal” of government regulation

Levers for Regulation		Degree of change: Minimal		Substantial
Protecting health	Health and safety regulations	Workplace safety inspected for hazardous materials, risk of bodily harm, and unsanitary conditions, with progressive physical distancing		Workplace sanitation regulation significantly increased with mandatory deep-cleaning, regular temperature checks, etc
	Employee benefits	Companies manage sick leave policies as desired (e.g., doctor’s note required, 8 days per year)	Health insurance expanded (e.g., guidelines streamlined for vaccination)	Government mandates increased flexibility of sick leave (e.g., 14 days minimum, use for dependent care, long-term illness)
	Travel restrictions	No additional travel restriction, but Increased sanitization of long distance transport	All public transit sanitized regularly with random temperature checks	Passenger health requirements enforced (e.g., temperature checks, health declaration forms, point-of-arrival quarantines)
Sustaining economy	Trade policy	Trade policy focused on maximizing economic growth		Focus on economic security as a driver of policy (e.g., increasing domestic production of pharma and PPE)
	Labor regulations	At-will contracts allow companies to hire & fire employees adhering to current regulations		New regulations aim to avoid mass layoffs in crisis situations (e.g., encourage rolling furloughs, contract reworking), with protected benefits for ‘gig economy’ workers
	Reskilling	No focused new ‘reskilling’ policies		Emphasis on reskilling for the ‘next normal’ (e.g., more remote working, reskilling workers for tradesman related work, reskilling workers for internal / external redeployment)

Source: McKinsey Global Institute

Organizations: The next normal

Degree of shift in Consumer behavior, Regulation, Organizations, and Supply Chain all drive a “next normal”

Illustrative “next normal” of how Organizations configure

Levers for Organizations		Degree of change: Minimal change		Drastic change
Organization configuration	**Where work happens**	White-collar employees remain “in the office”	Remote working enabled but most professions still “in person”	Remote working is fully accepted (e.g., ~25% of white collar labor fully remote incl. radiologists, financial analysts, consultants)
	How people organize	Traditional pyramidical structure to cover all functions needed to execute projects	Certain BU’s organized into networks of project-based work	Leaner, more ‘agile’ structure leveraging the gig economy for project-based execution
	How decisions are made	Defined process for execution of tasks (e.g., command and control, red-tape approvals)	More empowered teams	Strategy remains centrally set and coordinated; all operational decisions de-centralized with a bias for speed & test-and-learn mentality
	Workforce size and composition	WF predominantly consists of full-time employees	Management remains full-time; non-management shifts to “gig” workers	Gig economy utilized for all workers (full-time employees make up <20% of labor force)

Source: McKinsey Organization Practice

McKinsey
& Company