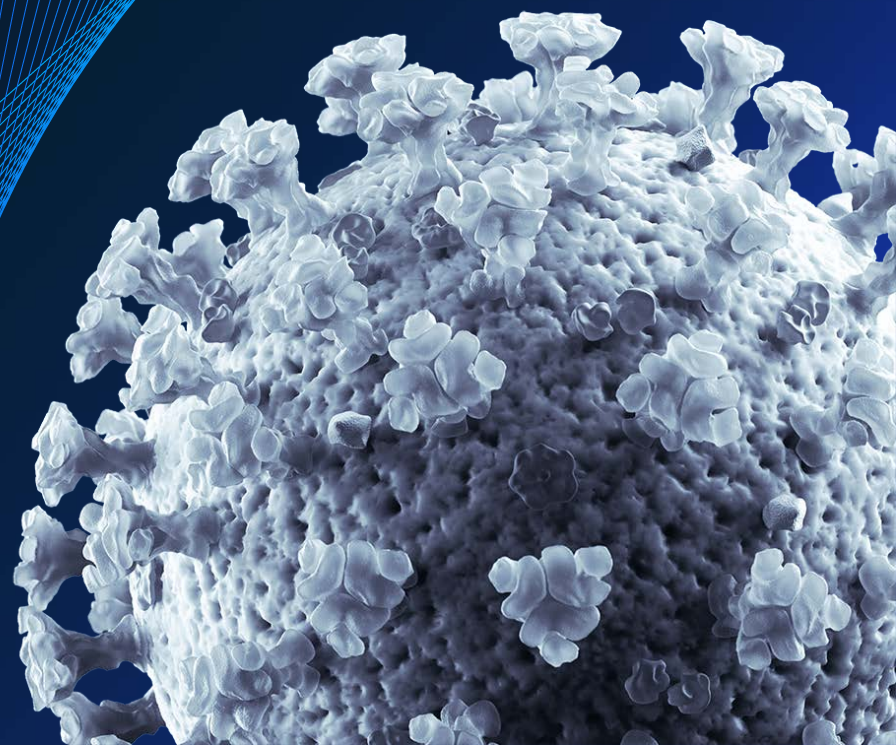
McKinsey & Company

Coronavirus COVID-19: Facts and Insights

Updated: March 9, 2020

Global Health + Crisis Response

DOCUMENT INTENDED TO PROVIDE INSIGHT AND BEST PRACTICES RATHER THAN SPECIFIC CLIENT ADVICE



- **COVID-19 is, first and foremost, a humanitarian challenge.** COVID-19 has affected communities on multiple continents, with over 3,500 deaths out of over 105,000 reported cases. To date, Wuhan and Hubei province have been the most affected locations. Thousands of health professionals are heroically battling the virus, putting their own lives at risk. Overstretched health systems mean that Wuhan and Hubei will need time and help to return to a semblance of normalcy.
- **Solving the humanitarian challenge is the top priority.** Much remains to be done globally to respond and recover, from counting the humanitarian costs of the virus, to supporting the victims and families, to developing a vaccine.
- **This document is meant to help with a narrower goal: provide facts and insights on the current COVID-19 situation to help decision-makers understand best practices.** In addition to the humanitarian challenge, there are implications for the wider economy, businesses, and employment. This document sets out some of those challenges and how organizations can respond in order to protect their people and navigate through an uncertain situation.

Executive summary (March 9, 2020)

- **COVID-19 continues to spread rapidly around the world.** Four transmission complexes (i.e., China, East Asia, Middle East, Europe) are active, with a fifth emerging in the US. Governments globally are preparing for the virus to hit their countries
- **Epidemiologist consensus suggests that the virus is highly transmissible and disproportionately impacts older segments of the population with underlying conditions.** The average patient infects 1.6 to 2.4 other people, and based on recent research, the fatality rate for patients in their 70s was three to four times the average. Other reports describe fatality rates for patients under 40 to be 0.2 percent
- **There are, however, three swing factors that remain unclear but could play a large role in how the virus evolves:**
  - **Extent of undetected, milder cases.** Those that are infected often display only mild or no symptoms, so it is easy for cases to be missed. Some studies suggest that there may be more instances of mild cases than are being detected, which means that the fatality ratio could be lower
  - **Whether the virus is subject to seasonality.** There is no evidence so far on whether COVID-19 will show seasonality (i.e., naturally reduce in the northern hemisphere as spring progresses). Coronaviruses in animals are not always seasonal but have historically been so in humans for reasons that are not fully understood. The behavior of this COVID-19 strain is, at this point, not entirely predictable
  - **Asymptomatic transmission.** Evidence is mixed about whether asymptomatic people can transmit the virus, and about the length of the incubation period
- **Given these considerations, there are three possible scenarios for COVID-19 and its economic impact:**
  - **Quick recovery scenario:** Confirmation of the fatality ratio and disease severity rate in the population of those of working age and below, combined with strong public health and other measures with limited duration of economic shutdown. While there is a reduction in consumer demand, it is localized and restricted in terms of duration. Expected 2020 global GDP growth drops from 2.5% to ~2.0%
  - **Global slowdown scenario:** Countries find it difficult to replicate strong public health measures, contributing to continued case growth. Despite that, socioeconomic reaction remains more localized given strong countermeasures taken. Greater shifts observed in daily behaviors, and certain sectors are deeply impacted. Ultimately, the spread of the virus is slowed down by seasonality. The economy recovers in late Q2, but 2020 global GDP growth drops to ~1.0-1.5%
  - **Global pandemic scenario:** There is a global, generalized spread of COVID-19, which is not impacted by seasonality. The economy experiences a demand shock that lasts for most of the year. Health systems might be overwhelmed in countries that face large-scale human impact. Overall, this scenario results in a recession, with global growth in 2020 falling to between -1.5% and +0.5%
- **Given the rapid spread of COVID-19 to date, companies could consider the following actions:** Protect and provide purpose to employees, stress-test their financials, stabilize the supply chain, engage customers, and integrate all these efforts under a central Nerve Center

Source: World Health Organization Situation Reports, News reports, Internal McKinsey analysis, Oxford Economics

COVID-19 – Epidemiological information

Latest as of March 9, 2020

Impact to date[1]

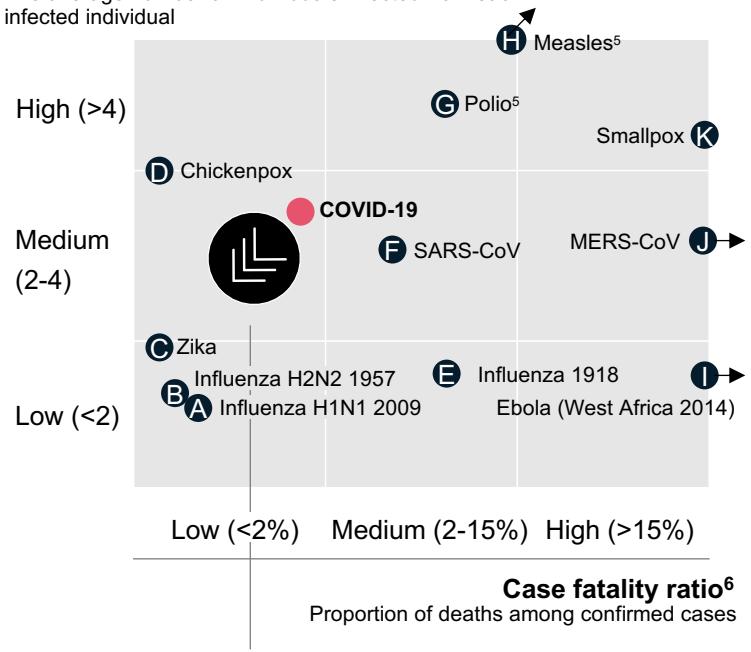
>105,000	Reported confirmed cases
>3,500	Deaths
102	Countries/territories affected[2]
43	Number of new affected countries/territories in the last 7 days
53	Countries/territories with evidence of local transmission[3]
17	Countries/territories with at least 100 reported cases[4]
~5%	New reported cases are in China in the last 7 days
~74%	New reported cases are in South Korea, Italy and Iran in the last 24 hours

Features of disease to date[5]

1.5-2x	Higher transmission compared to the flu
Up to 20%	Patients have severe disease
<1/40	Patients die; fatality rates are significantly lower outside Hubei[6]

Comparison to other diseases

Reproduction number[7]
The average number of individuals infected from each infected individual



Early identification of the disease, **intensification of viral control methods**, and **deployment of treatments** (when available) will drive down the reproduction number and reduce case fatality

Global considerations

- Numbers of affected countries has risen significantly, with 43 new countries/territories with cases in the last 7 days (102 countries/territories affected in total)
- Number of countries/territories with signs of local transmission[3] is rising every day (~5 more countries/day in the last 7 days)
- Reported cases in Italy in Iran passed 5000 total cases in the last 24 hours
- Ability to contain disease in the Italy-, Iran- and US-centered complexes, and countries within transmission complexes, will be critical in the next week to limit propagation

China (outside Hubei)

- Daily incremental case count remains low for the last 7 days; fewer than 1 reported cases per million residents
- Overall downward trends in the number of confirmed cases reported

1. Latest numbers are available from a number of sources, including daily situation reports from the World Health Organization
2. Previously only counted countries; now aligned with new WHO reports;; excluding cruiseship | 3. Previously noted as community transmission in McKinsey documents; now aligned with WHO definition.
4. >=100 reported cases in China, South Korea, Japan, Singapore, Italy, Germany, France, Spain, Switzerland, UK, Netherlands, Belgium, Sweden, Norway, Austria, Iran and US
5. Evidence on exact numbers are emerging, however expected to decrease as viral containment measures intensify and treatments are developed
6. Case fatality numbers are reflective of the outbreak setting and depend on a number of factors, including patient's age, community immunity, health system capabilities, etc.
7. In outbreak setting or at the beginning of the introduction of a new disease

Source: World Health Organization, CDC, latest news

Four major transmission complexes exist, with a fifth emerging

A complex combines confirmed local transmission, >100 confirmed cases, tough-to-prevent people movement

Complex with mature/ on-going propagation

Complex with early propagation

5 complexes with COVID-19 propagation

Deep economic integration and regular human and material movements mean that it will be tough to limit virus propagation within these complexes

>250 reported cases

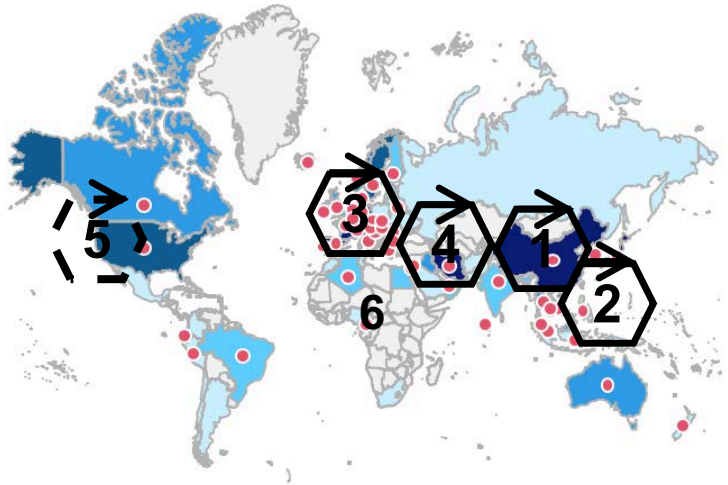
100-249 reported cases

50-99 reported cases

10-49 reported cases

<10 reported cases

Suspected local transmission



Transmission complexes	Trend[1]	Total cases[5]	Total deaths[5]
1 **China complex:** Mature propagation	↘	80,859	3,100
2 **Asia (excl. China) – South Korea centered complex:** Ongoing propagation	↑	8,021	61
3 **Europe – Italy centered complex:** Ongoing propagation	↑	9,456	255
4 **Middle East[3] – Iran centered complex:** Ongoing propagation	↑	6,180	149
5 **Americas – USA centered complex:** Early propagation	↗	347	12
6 **Africa:** Limited to no propagation[4]	→	27	0

1. Indicating the trend in incremental reported cases per day | 2. Includes Western Pacific (excl China) and South-East Asia WHO regions | 3. Eastern-Mediterranean WHO region
4. <20 cases in Algeria and <5 cases in Senegal, Cameroon, South Africa, Nigeria and Togo | 5. Excludes Cruise Ship

Source: World Health Organization, team analysis

COVID-19 – China's context and case count growth ex-Hubei

China context

Population
1.4 bn with 11% over 65 years old[1]

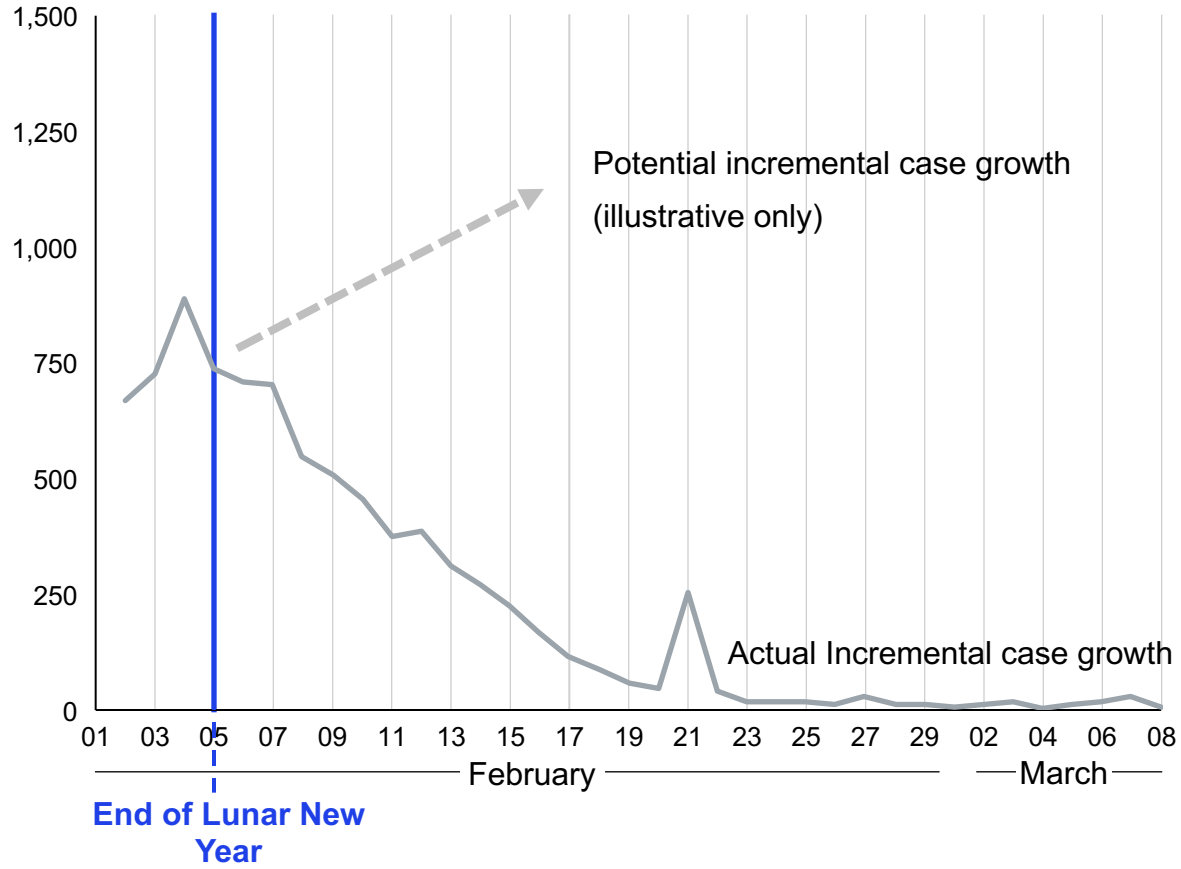
Population density
~3.3X higher population density in China compared to upper middle income countries[1]

Respiratory Risk
8.6% of adults have underlying respiratory issues (COPD)[2]

1.4X higher mortality rate attributed to pollution compared to upper middle income countries[1]

Primary health system
5.6% of the doctors in township health centers had formal medical education in 2010 compared to 10% in 2017[3]

Daily incremental cases
China ex-Hubei, count



What we know:

- Transmissibility
- Impact on older patients with underlying conditions

What is being discovered:

- Extent of mild cases and implied case fatality ratio
- Seasonality
- Asymptomatic transmission

1. World Bank Data 2. Koch et al, *Characteristics and health burden of the undiagnosed population at risk of chronic obstructive pulmonary disease in* China, PMC Public Health (2019); Fang et al, *Chronic obstructive pulmonary disease in China: a nationwide prevalence study.* The Lancet Respiratory Medicine, 2018; 3. BMJ

Source: World Health Organization, World Bank Development Indicators, BMJ, expert interviews

Unaddressed, COVID-19 can spread rapidly – yet public health measures can help minimize spread

	Diamond Princess cruise ship		Migration post-Lunar New Year	
Overview	**~3,700**	Number of crew members and guests on board of Diamond Princess cruise ship	**25 Jan**	China marked the Lunar New Year while concerns grow about the coronavirus
	1 Feb	Individual who had been a passenger tested positive for COVID-19 six days after leaving	**~3bn**	Original number of trips expected to occur during the Lunar New Year
	4 Feb	10 individuals who had been on board tested positive for COVID-19; Japan's Ministry of Health places the entire ship under a 14-day quarantine		
Response	▪ Japanese public servants tested passengers; those who tested positive were transported to health facilities ▪ Those who had symptoms stayed on board until cleared ▪ Some repatriated passengers who were placed under additional quarantine tested positive		▪ Extension of the Lunar New Year holiday ▪ 14-day self-quarantine of everyone travelling from affected areas ▪ Rapid expansion of hospital facilities ▪ Closure of tourist sites, cancelled public events ▪ Travel restrictions imposed	
Impact	**~700**	Reported number of confirmed COVID-19 cases	**754**	Number of incremental cases February 1, China ex-Hubei
	~50%	Percentage of confirmed cases where no symptoms were evident	**376**	Number of incremental cases February 11, China ex-Hubei
	7	Confirmed number of deaths due to COVID-19		

Highly transmittable, especially in confined spaces

Few or no symptoms in many confirmed cases

Comprehensive public health measures effective in reducing case count growth post-Lunar New Year, minimizing viral spread despite high passenger volumes

Source: WHO, Statista, Press search

Three scenarios for how COVID-19 could evolve

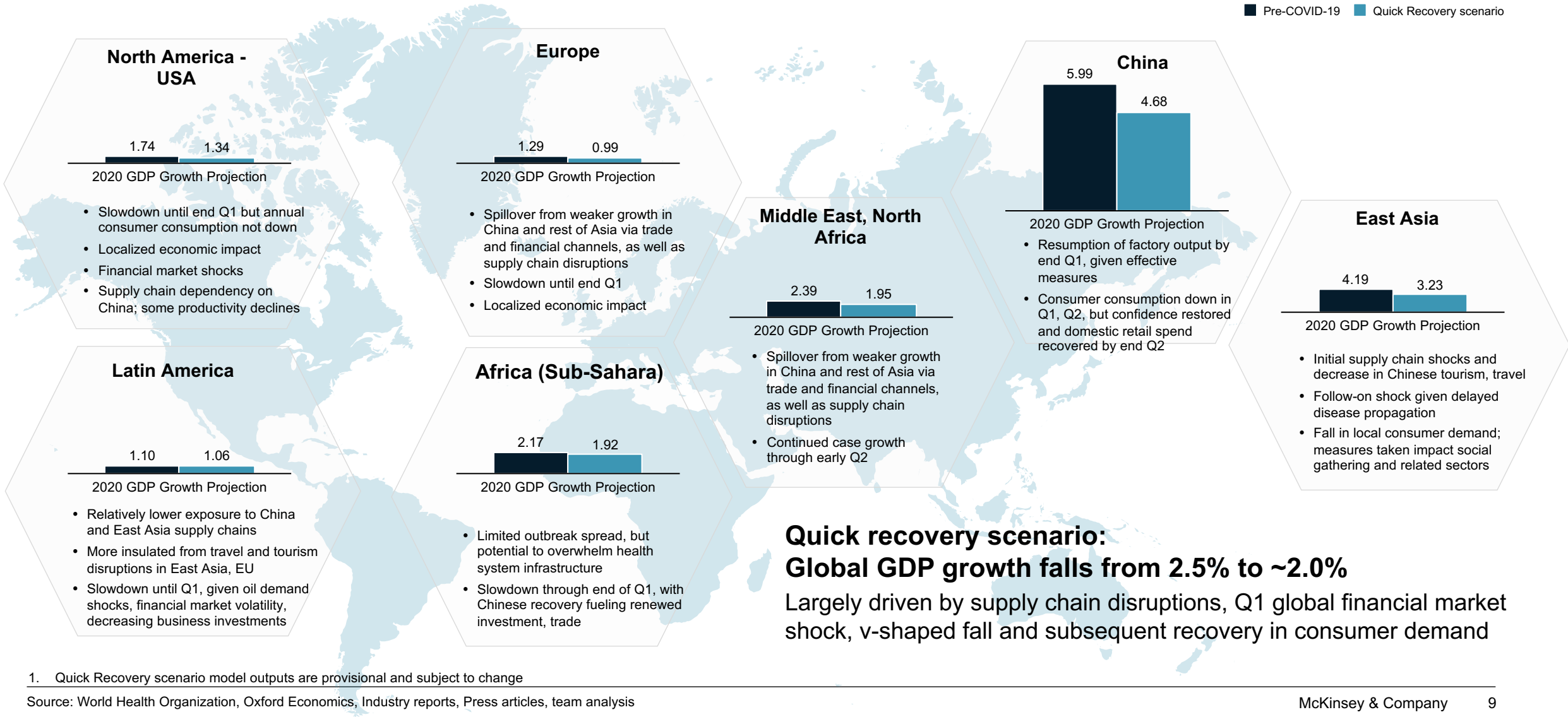
Potential scenarios as of March 9, 2020

	Quick recovery	Global slowdown	Global pandemic and recession
What you have to believe	• **Public health response** similarly effective as with China • Virus is **seasonal** • **Fatality ratio** similar to that of the flu (or an existing therapy proves effective) • Socioeconomic reaction is **localized** • **Strong public reaction**, initial drop in demand, but **peak comes quickly** • **Working populations** change some daily habits but resume ec. activity	• **Less effective public-health response** than China • Virus is **seasonal** • **Fatality ratio** is higher than or near that of the flu, dependent on public health response • Impact largely **localized** in Europe and US; some spread in **other transmission complexes** in Africa, India, with more generalized reactions • Greater shift in **daily behaviors**	• **Less effective public-health response** than China • Virus is **not seasonal** so transmissibility does not decline with northern hemisphere spring; case resurgence observed in China • **Fatality ratio** is higher than that of the flu, because of disease characteristics or insufficient health system response • Continued **case growth count** through Q2 and Q3 • Reaction is **generalized**
How the scenario could evolve	• **China recovery** is largely complete, inc. Hubei by early Q2 • **Relatively fast rebound** after initial acute drop in consumer demand • US, Europe economic **slowdown until the end of Q1** • **Varied impact** in other economies (Middle East, rest of Asia, Africa, LatAm) – slowdown in Middle East until Q2; some disruption in Africa, LatAm	• **China recovery is largely complete**, incl. Hubei by early Q2 • US, Europe sees **economic slowdown until mid-Q2**; other regions see varied impact (rest of Asia, Middle East more impacted; LatAm, Africa more insulated) • **Certain sectors** (e.g., aviation, hospitality) deeply hit – missing the summer season • **Other sectors** (e.g., CPG) experience acute initial drop, recover at end-Q2	• China recovery **increases transmission** and potential resurgence in cases; complete by Q4 2020 • US, Europe see **generalized reaction** • Global recession – economic **slowdown across all regions** • Consumer confidence does not recover until **end Q3 or beyond**

Source: Expert interviews, team analysis

Potential impact of COVID-19 outbreak on 2020 GDP growth[1]

Even in a "quick recovery" scenario, regions experience significant economic disruption



Quick recovery scenario:
Global GDP growth falls from 2.5% to ~2.0%

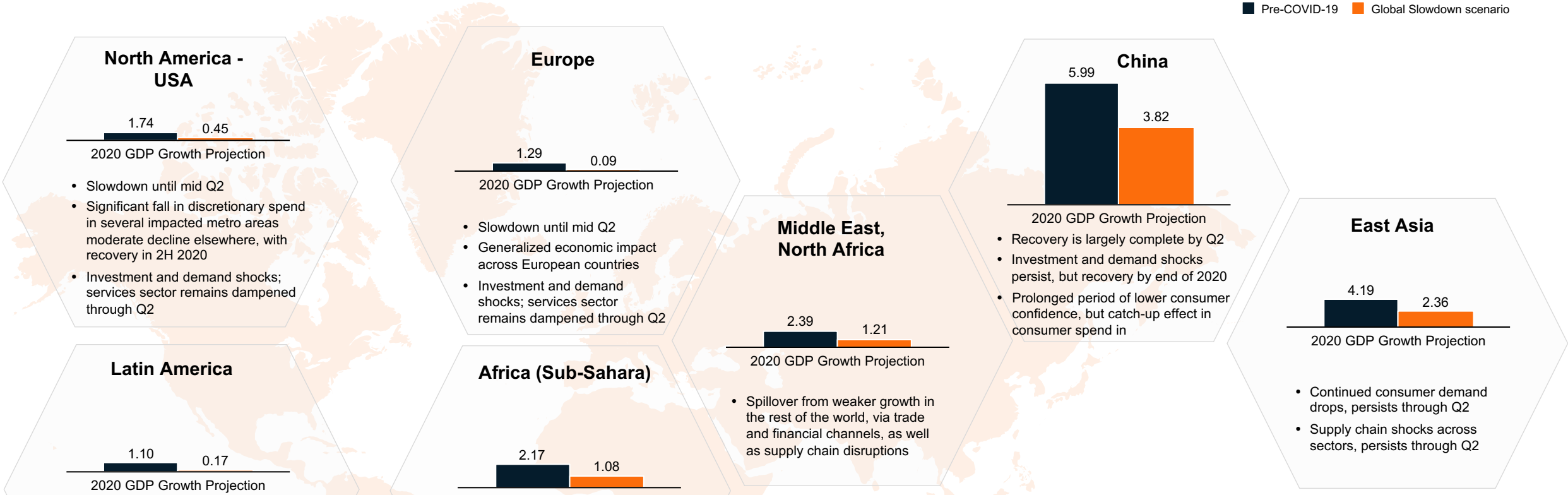
Largely driven by supply chain disruptions, Q1 global financial market shock, v-shaped fall and subsequent recovery in consumer demand

1. Quick Recovery scenario model outputs are provisional and subject to change

Source: World Health Organization, Oxford Economics, Industry reports, Press articles, team analysis

Potential impact of COVID-19 outbreak on 2020 GDP growth[1]

In a "global slowdown" scenario, regions experience significant economic disruption and prolonged recovery



Global slowdown scenario:
Global GDP growth falls from 2.5% to ~1.0 – 1.5%

Q1 global financial market shock, u-shaped fall and slower recovery in consumer demand, supply chain disruption

1. Global Slowdown scenario model outputs are provisional and subject to change.

Source: World Health Organization, Oxford Economics, Industry reports, Press articles, team analysis

All sectors are impacted, with several seeing severe consequences

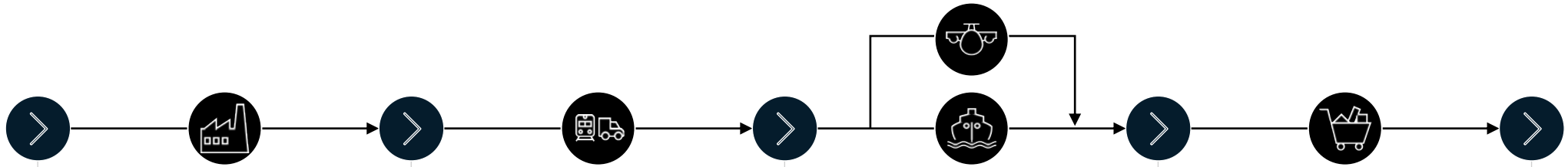
Preliminary views based on base case – Subject to change as the COVID-19 outbreak evolves

	Tourism and hospitality	Aviation / airlines	Oil and gas	Automotive	Consumer products	Consumer electronics, semi-conductors
Estimated degree of impact, in terms of duration	Longest					
Estimated global restart (Global slowdown scenario)	**Q4**	**Late Q3 / early Q4**	**Q3**	**Late Q2 / Q3**	**Q2**	**Q2**
	Severe ripple effects (e.g., closures in Paris, tourism down 50% in Vietnam, despite lack of local transmission) Delayed **recovery until winter season**, when disease might surge again Potential of more **localized** impact, containing negative demand hit	**Sustained headwinds**, with global travel acutely impacted; summer season missed – **forward bookings** for Mar-April down significantly; reports of over 40% in certain airlines Pace of recovery faster for **domestic travel** (~2 quarters); slower pace of recovery for **long-haul and/or international travel** (up to ~3-4 quarters)	**Oil price decline** driven by both longer-term demand impact and short-term supply overhang Rebound expected with resumption of consumer demand, but **long-term impact likely** if situation persists and depresses prices beyond a year	**Existing vulnerabilities** (e.g., trade tensions, declining sales) amplified by acute decline in Chinese demand, continued supply chain and production disruption (in China, rest of Asia, now EU) Headwinds to persist into Q3 given **tight inventories** (<6 weeks), **supply chain complexity** (therefore, minimal ability to shift)	**Overall moderate decline** in private consumption and exports of services Demand for **certain product segments** (e.g., food, produce) resilient; significant **online** growth (though hampered by labor shortage) Potential of **localized** impact, containing negative demand hit	**Market structure shifts accelerated** (e.g., strategic moves to diversify supply chain) **Downstream impact** due to supply chain challenges in China, rest of Asia (esp. South Korea), causing delays in 5G, product development Pace of recovery to **differ by sub-sector** (e.g., semiconductor likely faster)

Source: IHS Market; McKinsey Global Institute Analysis; Subject matter experts; Press reports

Many disruptions exist across the supply chain, but the full impact has yet to be felt

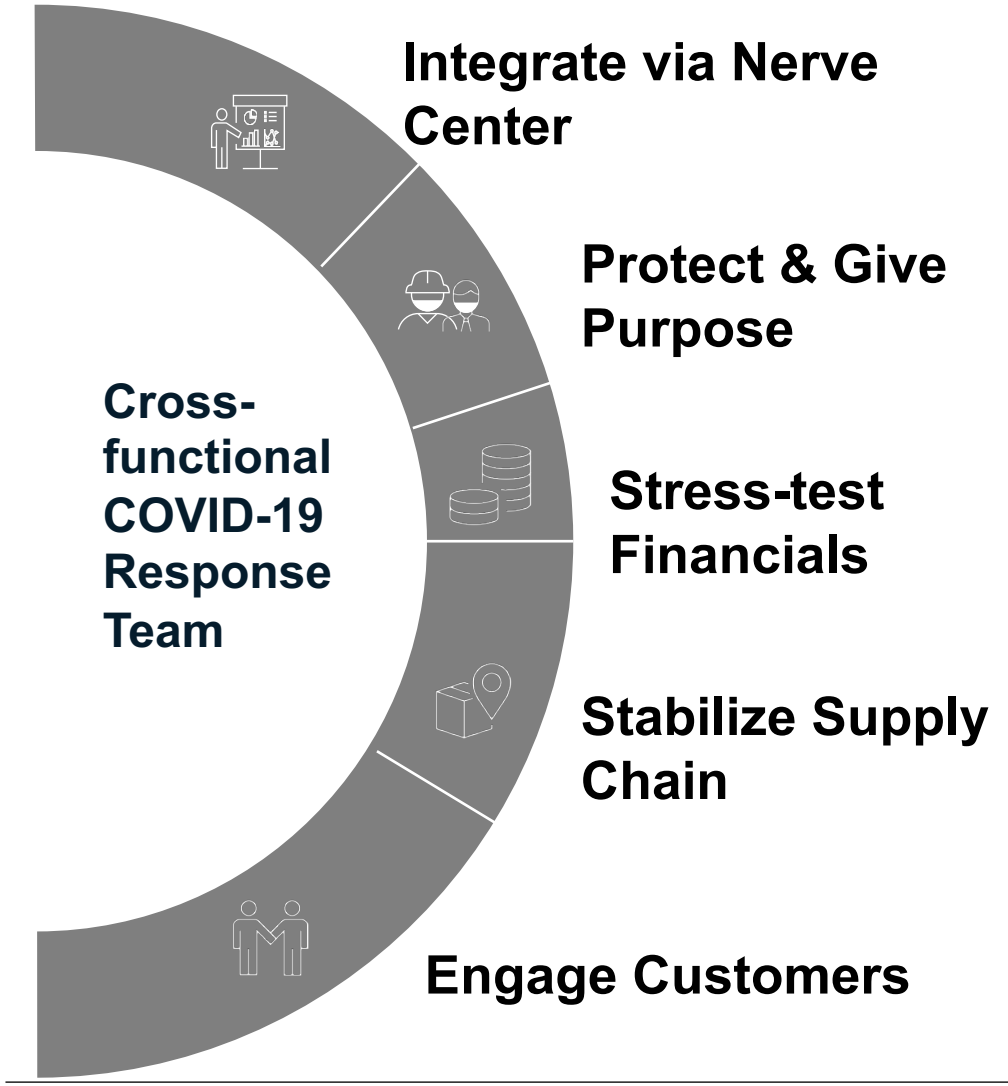
Impact: HI MED LO



Situation today	**4X** fatality ratio Hubei still in early recovery **80%** plants restarted Restart underway Workers still returning	**50%** truck capacity 10+ day delay to get goods to port	**28%** BDI increase Baltic Dry Index 28% higher since end LNY, but 13% below 2/2019 **15%** higher TAC TAC index 15% below 2/2019; passenger a/c cargo constraint	**90%** car sales decrease China consumer sentiment sharply lower Europe & US sentiments evolving, but currently localized
What to expect	Hubei recovers early Q2 Parts shortages ex Hubei Customer pressure for prioritization	Trucking capacity constraints ease	Logistics capacity returns, but faces constraints; near-term price increase Inventory 'hoarding' behavior	Inventory 'whiplash'. 7-8 wks auto, 2-4 wks high-tech GDP impact Sharp rebound Demand shift

Source: WHO Situation Reports; CDC travel notice, IATA, Reuters, TomTom traffic index, press searches; HSBC Business School, Tencent News, Sina news, Beijing Environmental Protection Monitoring Center, Shenzhen Environment Network

COVID-19 Response Workstreams

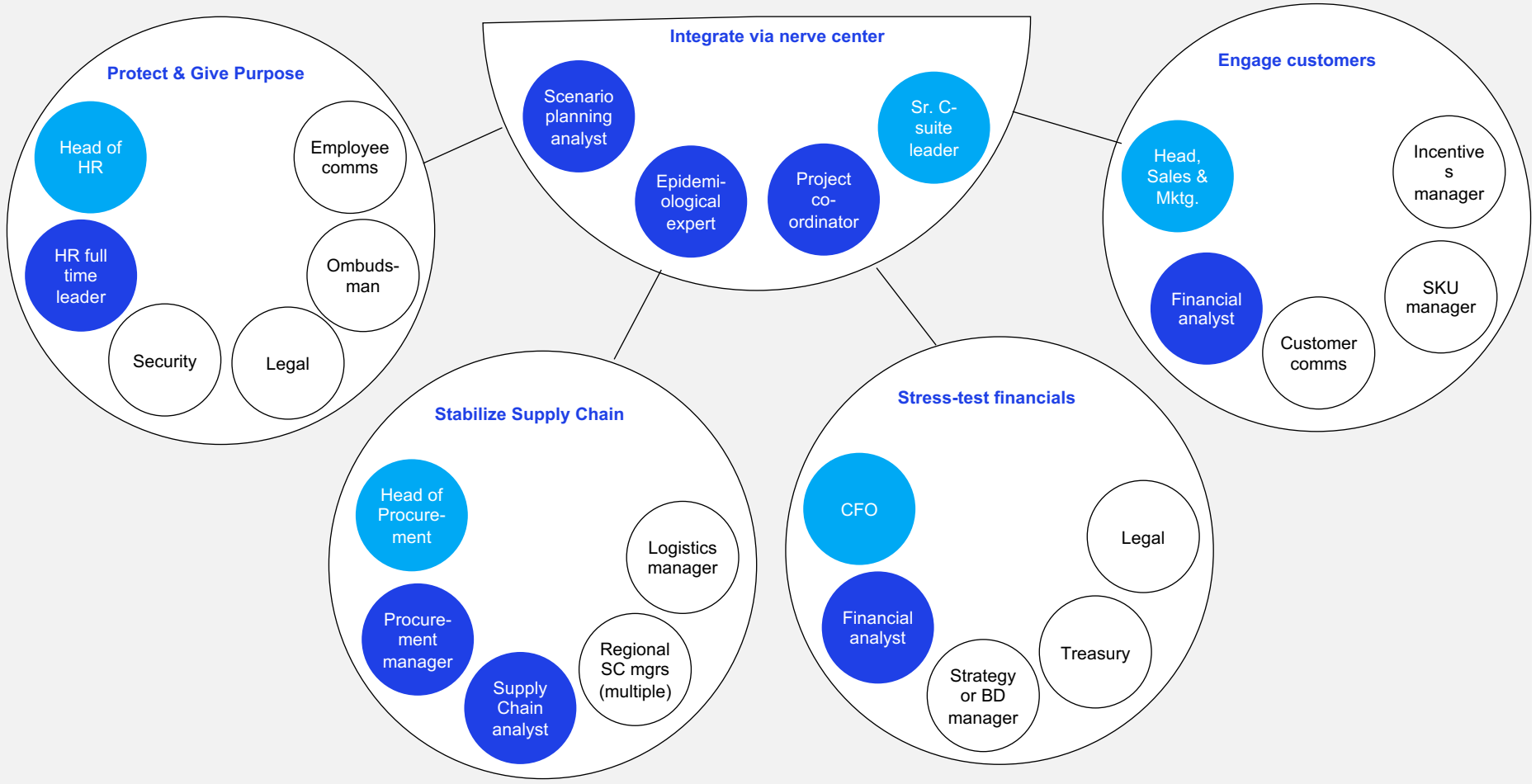


Define, align leaders on potential scenarios
Create ‘single source of truth’ about the headwinds
Run table-top exercises for tough decisions
Provide clear policies and guidelines
Ensure transparent two-way communications
Monitor issues on near real-time basis, with rapid response
Track adherence to policies
Support global response efforts
Run financial stress test for all scenarios
Define trigger-based portfolio of actions
Update demand forecasts
Map exposure to suppliers (Tiers 1, 2, 3), estimate impact
Support supplier stability and operational re-starts
Act on part rationing, inventory, logistics
Drive greater supply chain risk management in the medium term
Ensure customer transparency (B2B context)
Define plan for priority growth segments
Refresh customer loyalty programs, incentive plans

COVID-19 Response Nerve Center organization

- **Multiple semi-autonomous, cross-functional** teams working in parallel (helps speed)
- **Agile principles**, enabled by clearly articulated values
- **Simple meeting cadence and radical transparency** across groups (e.g., all working materials available to all)

Example nerve center organization – key roles



Example measures that organizations have deployed for employees

	Industry agnostic	Non-manufacturing or direct service industries	Manufacturers
Travel restrictions	▪ Delaying all non-essential travel to highly affected areas (e.g., China, Italy, Japan) ▪ Cancelling big gatherings and events		
Ways of working	▪ Splitting critical workforce in different locations / satellite sites or different parts of the building/workspace ▪ Devolving manager accountability so employees could put their health first and take decision accordingly ▪ Quarantining employees who recently visited highly affected areas ▪ Quarantining employees exposed to confirmed cases (e.g., working on the same floor) ▪ Keeping all large meetings virtual (using VC) ▪ Restricting outside visitors / third parties	▪ Offering employees the flexibility to work from home, enabled by virtual communication and collaboration tools ▪ Increasing self-service options (at retail bank branch locations) ▪ Shutting down certain floors to concentrate limited staff resources (e.g., in hotel context)	▪ Changing shifts to allow for parents to be at home with kids (i.e., in areas with school closures) ▪ Introducing virtual shifts so certain roles (e.g., monitoring) are minimized ▪ Staggering shifts (e.g., 6 hour x 4 shifts) ▪ Staggering start times and on-site meal offerings to minimize crowding ▪ Temporarily closing production sites in highly affected areas (e.g., Northern Italy) ▪ Quarantining cohorts in advance of shifts
Health precautions	▪ Over-communicating policies around safety/precaution in a simple readable format ▪ Sanitizing workplaces on a more frequent basis ▪ Sending care packages to employees (e.g., a thermometer, hand sanitizer and vitamin C) ▪ Monitoring temperature of all employees at the entrance to the building	▪ Reducing the range of products	
Other	▪ Encouraging open communication to ensure employees can speak up if they feel unsafe ▪ Revising policies to ensure no punitive measures taking for “days off” due to being ill		▪ Leveraging parcel shipping technology to reallocate its inventory to mitigate the impact of the virus ▪ Dividing production facilities (e.g., sealing out certain areas, making handovers without physical contact, protecting groups of people from each other)

Source: Team analysis, press search

Example supply chain actions to consider

Immediate (2-4 weeks)

Understand exposure

1. **Determine truly critical components** and understand risks of tier 1 to tier 2 suppliers onwards
2. **Define current inventory buffer** and locations[1]
3. **Identify origin of supply** (i.e., Hubei/ Wuhan) to identify severity of risk
4. **Conduct scenario planning** to understand financial and operational **implications in prolonged shutdown** (scenarios 2 and 3)
5. **Work with S&OP to get 3-6 month accurate demand signal** segmenting likely to be impacted demand to **determine required supply**

Take action to address anticipated shortages

6. **Look to ramp up now on alternative sources** if supplies are in Hubei and accelerate exploration of additional options
7. **Change mode of transportation** to reduce replenishment lead-time and **pre-book air freight[2] / rail capacity** as required by current exposure
8. **Optimize limited production** by prioritizing for items that would support better healthcare delivery and outcomes
9. **Collaborate** with all parties **to jointly leverage freight capacity**, **new/alternate supply** sources, etc.
10. **Watch for extending lead times** to gauge performance and capacity against supplier promises
11. **Use after sales stock as bridge** to keep production running

Ensure resources required to restart

12. **Work with supplier to source personal protective equipment for production lines** operating in affected markets (e.g., glasses, gloves and masks)
13. **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
14. **Consider short-term stabilization for suppliers** (e.g., low-interest loan) to allow for a faster restart

Understand additional options

15. **Determine what portion of supply can be swung to another site** if shutdown persists **based on sourcing strategy** (single, dual, multi)
16. **Identify ways to expedite qualification process** and/or insource
17. **Determine possible geographies and supplier shortlists** in case alternate supply is required

1. Buffer stock from Lunar New Year may provide a cushion and potential false sense of security. Impact likely to be felt first in JIT supply chains (e.g., automotive).
2. Given costs, airfreight might not be an option for many industries; availability is already limited

Mid-term (2-4 months)

Continuously improve material supply stability

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

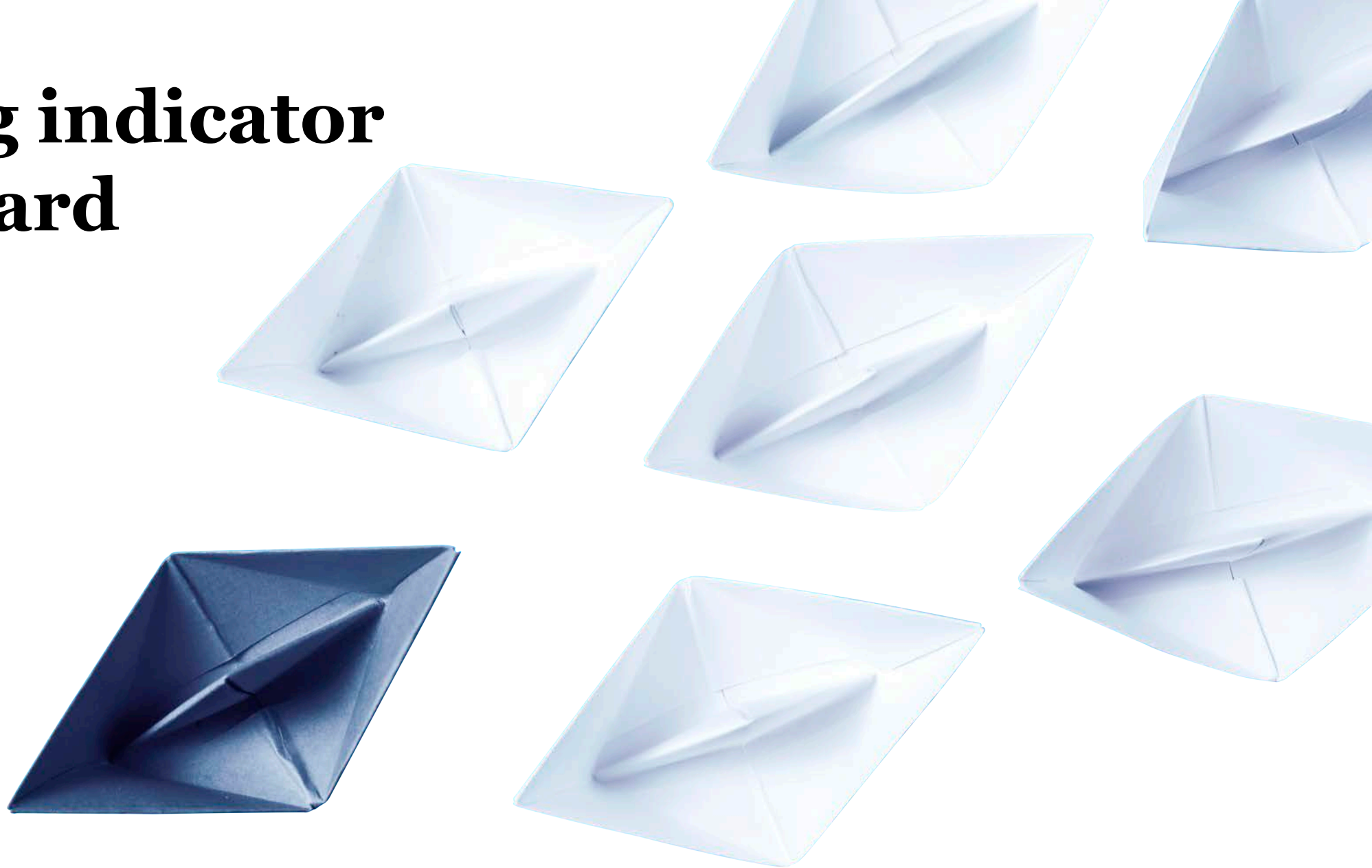
Kick off designing resilient supply chain for the future

- Establish a **supply chain risk function**
- **Digitalize process and tools** to integrate demand, supply, and capacity planning
- Trigger the new supply network **design for resilience**
- **Codify the processes and tools** created during the crisis management as formal documentation
- Convert war room into a **reliable risk management process**

Build collaborative relationship w/ external partners

- Work with government to explore **potential tax benefits**
- **Actively engage investors** and other stakeholders to build transparency on the situation and get help

Leading indicator dashboard



COVID-19 Leading Indicator Dashboard

Propagation of COVID-19 across new transmission complexes

Cluster	Representative country	Date of initial case	Total number of cases	Number of new cases in last 14 days	Last 3 days	Prior 3 days	Case fatality ratio[2]	Peak case count observed?[3]	# of countries/ territories restricting travel	# of airlines suspending service to impacted country[4]	Traffic congestion level[5]
		Epidemiological Indicators			**Compound daily growth in cases**				**Economic/policy indicators**		
Asia (ex-China)[6]	South Korea	Prior to 01/20	7,134	6,532	7%	11%	0.7%	N	53	X 11	Data N/A
	Japan	Prior to 01/20	455	323	13%	8%	1.3%	N	26		25 / 44
	Singapore	01/24	138	49	8%	1%	0%	N	21		7 / 24
	Rest of region	Prior to 01/20	294	190	10%	22%		N			
Europe	Italy	01/31	5,883	5,807	24%	11%	4.0%*	N	50	X 15	11 / 29
	France	01/25	707	694	36%	41%	1.4%	N	8		26 / 45
	Germany	01/28	795	779	45%	27%	0%	N	8		21 / 22
	Rest of region	01/29	2,072	2,044	45%	46%	0.5%	N			
Middle East[7]	Iran	02/20	5,823	5,795	26%	44%	2.5%*	N	53		Data N/A
	Rest of region	02/15	357	355	18%	9%	1.1%	N			
Americas	US	01/23	213	178	18%	28%	5.2%*	N	5		30 / 34
	Rest of region	01/27	134	125	41%	20%	0.7%	N			

*Likely to fall as testing becomes more widely available. Source: WHO Situation Reports; CDC travel notice, IATA, Reuters, TomTom traffic index, press searches

Current phase

Stage 1: Small number of cases identified; no sustained local transmission

Stage 2: Disease spread and sustained local transmission[1]

Stage 3: Government action/shift in public behavior. Not all affected regions enter stage 3, but significant gov. intervention/ economic impacts signal prolonged recovery

Stage 4: Case growth/stretched health systems

Stage 5: New case drop, activity resumption

CDC travel health notice

- Warning Level 3
- Alert Level 2
- None

Traffic congestion level[5]

- 03/08/2020
- 03/08/2019

1. **Based on WHO definition**, previous version used community transmission and local transmission interchangeably
2. **Case Fatality Rate** calculated as (deaths on day X) / (cases on day X). Note that previous versions of this dashboard (February 28 and prior updates), calculated CFR = (deaths on day X) / (cases on day X-7) to account for disease incubation period. We changed the definition because the old formula was causing confusion for some readers
3. **Assessment based on observed stoppage** in growth of cases and medical community's opinion validated by external sources
4. Include route suspension or reduction
5. **Based on representative cities:** Tokyo, Singapore, Milan, Paris, Berlin, Los Angeles
6. Includes Western Pacific (excl China) and South-East Asia WHO regions
7. Eastern-Mediterranean WHO region

Note: All countries or regions have documented 3rd generation cases

COVID-19 Leading Indicator Dashboard – China-specific

Currently tracking towards restart in China

Hubei impact

How deeply is Hubei (esp. Wuhan) impacted, and when could economic activity restart?

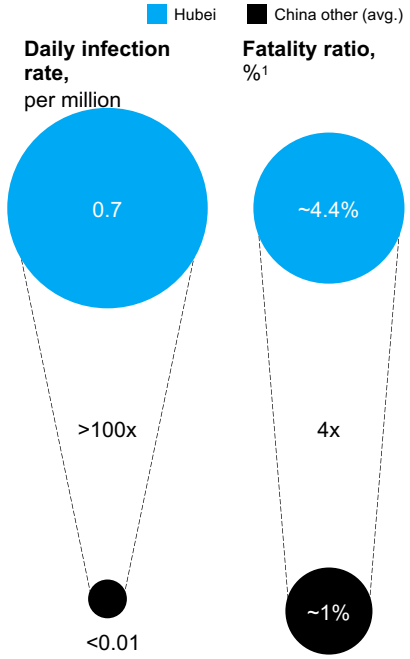
Late **Q2**

Hubei remains deeply impacted

Return to economic activity tough to foresee until mid Q2

Hubei recovery milestones to watch

- Rate of confirmed cases consistently decreasing
- New suspected/ confirmed cases rate consistent with other provinces
- Quarantine lifted
- No additional spikes in case count
- Public transport resumes
- Factory activity return to pre-outbreak levels



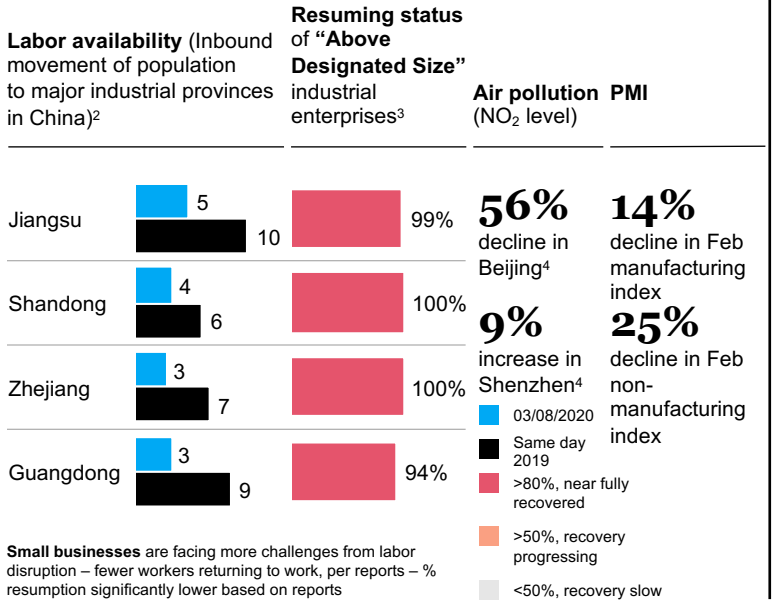
CN economic restart

How quickly could economic activity restart in China (ex-Hubei)?

Late **Q1**

Restart (ex-Hubei) has begun, but faces challenges – from worker shortage to movement of goods with larger companies witnessing higher business resumption rate

Most activity likely to return late Q1



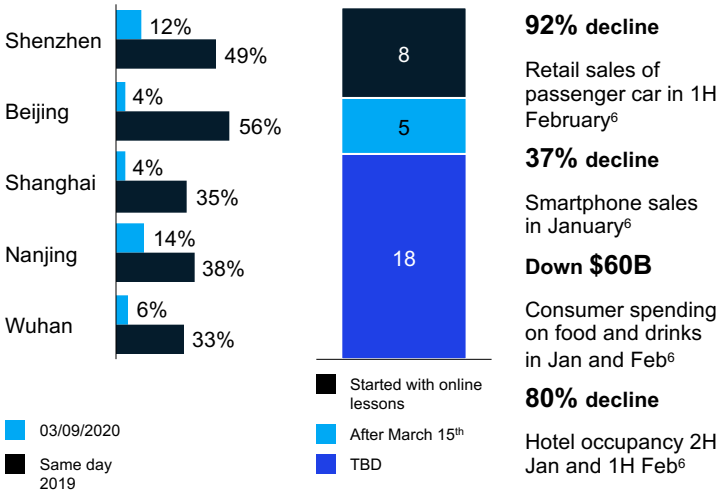
CN consumer confidence

How quickly will Chinese consumer confidence and purchasing activity return?

Early **Q2**

In-China consumer spend may lag a few weeks behind economic restart

Certain sectors (e.g., tourism) impacted well into Q2



1. Case Fatality Rate calculated as (deaths on day X) / (cases on day X). Note that previous versions of this dashboard calculated CFR = (deaths on day X) / (cases on day X-7) to account for disease incubation period. We changed the definition because the old formula was causing confusion for some readers; 2. Measures movement of population into destinations as of 3/8/2020 ; 3. Latest data from Guangdong as of 3/5, Shandong as of 3/1, Zhejiang as of 2/26, and Jiangsu as of 3/1 ; 4. 5-day average (5-Mar to 9-Mar) compared to 2019; 5. Car traffic only. Congestion level measures % increase in travel time compared to free flow condition; 6. Year over year comparison

Source: WHO Situation Reports; National Bureau of Statistics of China; McKinsey Global Institute; OCED Data, Johns Hopkins CSSE, press research, TomTom traffic index, Baidu QianXi, CDC, New York Times, Reuters, oag.com, The Economist, Peking University HSBC Business School, Tencent News, Sina news, Beijing Environmental Protection Monitoring Center, Shenzhen Environment Network