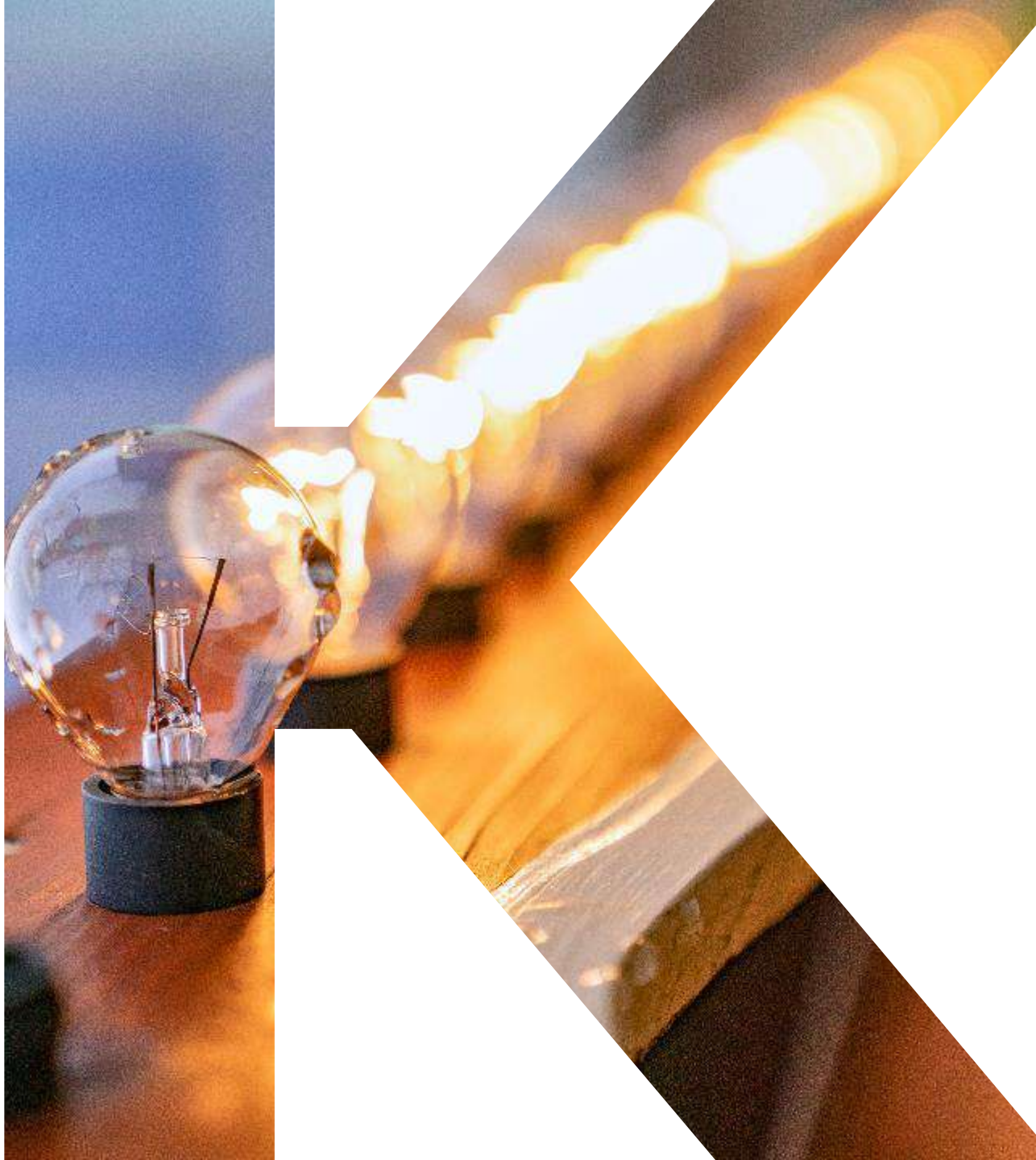
Coronavirus and its impact on global supply chain

Impact of Coronavirus (SARS-CoV-2)

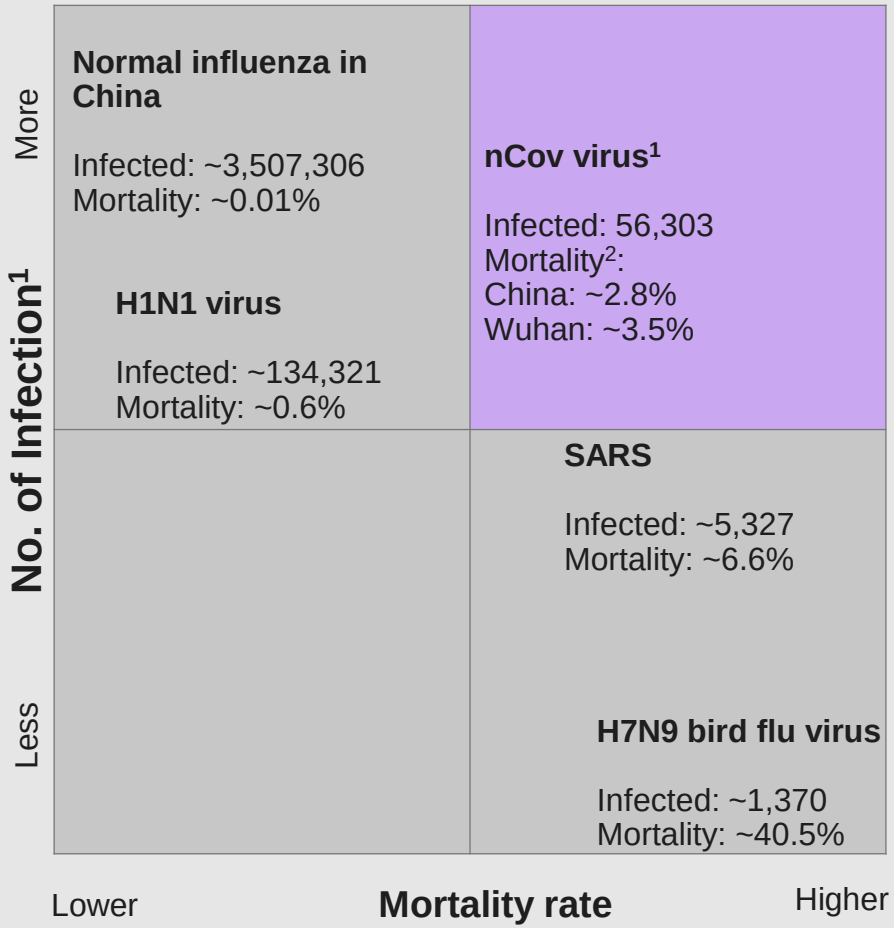
Feb. 24, 2020

KEARNEY



Coronavirus is characterized with higher infection rate, but lower mortality compared with SARS

Typical influenza and their features in China



1. Currently confirmed cases, excluding cured and dead patients
2. Calculated as follows: Casualties / Diagnosed cases
3. Accumulated, including infected, cured and dead

Source: National Health Commission of .P.R.C, Kearney analysis

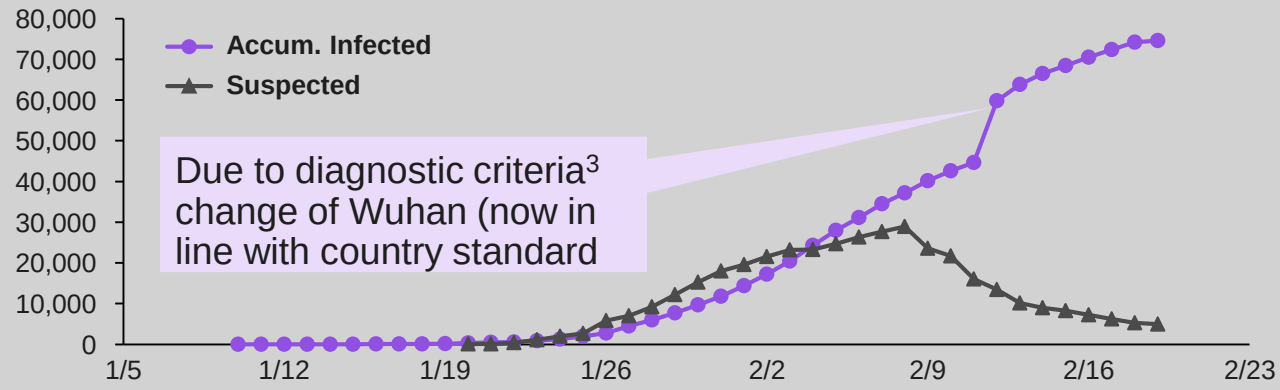
Current statistics of nCoV in China (as of Feb. 19th)

Diagnosed[3]	74,576
Suspected	4,922
Dead	2,118
Cured	16,155

The number of infection is expected to reach the peak in late Feb. or early Mar., and central government is pushing for work resumption

China overall epidemic trend (Accumulated infection)

(as of Feb. 19th)

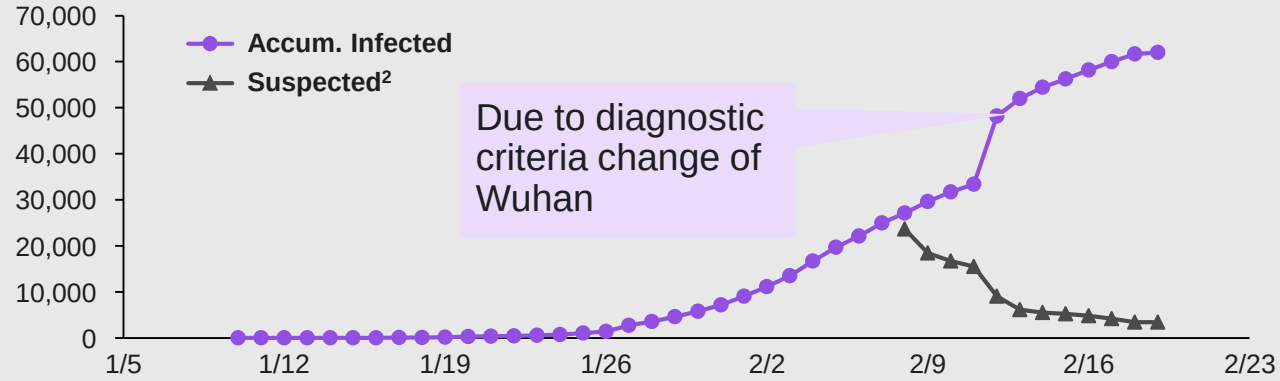


The situation will start to improve in Mar. and can fully recover in Apr.

- Dr. Nanshan Zhong, Infectious Disease Specialist

Hubei overall epidemic trend (Accumulated infection)

(as of Feb. 19th)



1. For majority production enterprise, service industry will still be impacted ; 2. Data before 2/8 not available ; 3. Formerly using Standard Nucleic Acid Test, now using "Clinically Diagnosed", i.e. those with symptoms such as fever, and CT confirmed lung infection

Source: National Health Commission of P.R.C., Kearney analysis

Current status

- The overall no. of confirmed cases **hasn't reached the peak**
- However, the growth rate of newly confirmed cases has **slowed down** since Feb. 4th(despite the surge on Feb. 13th)
- The diagnostic criteria change also **demonstrates government confidence** in hospital readiness

Epidemic forecast

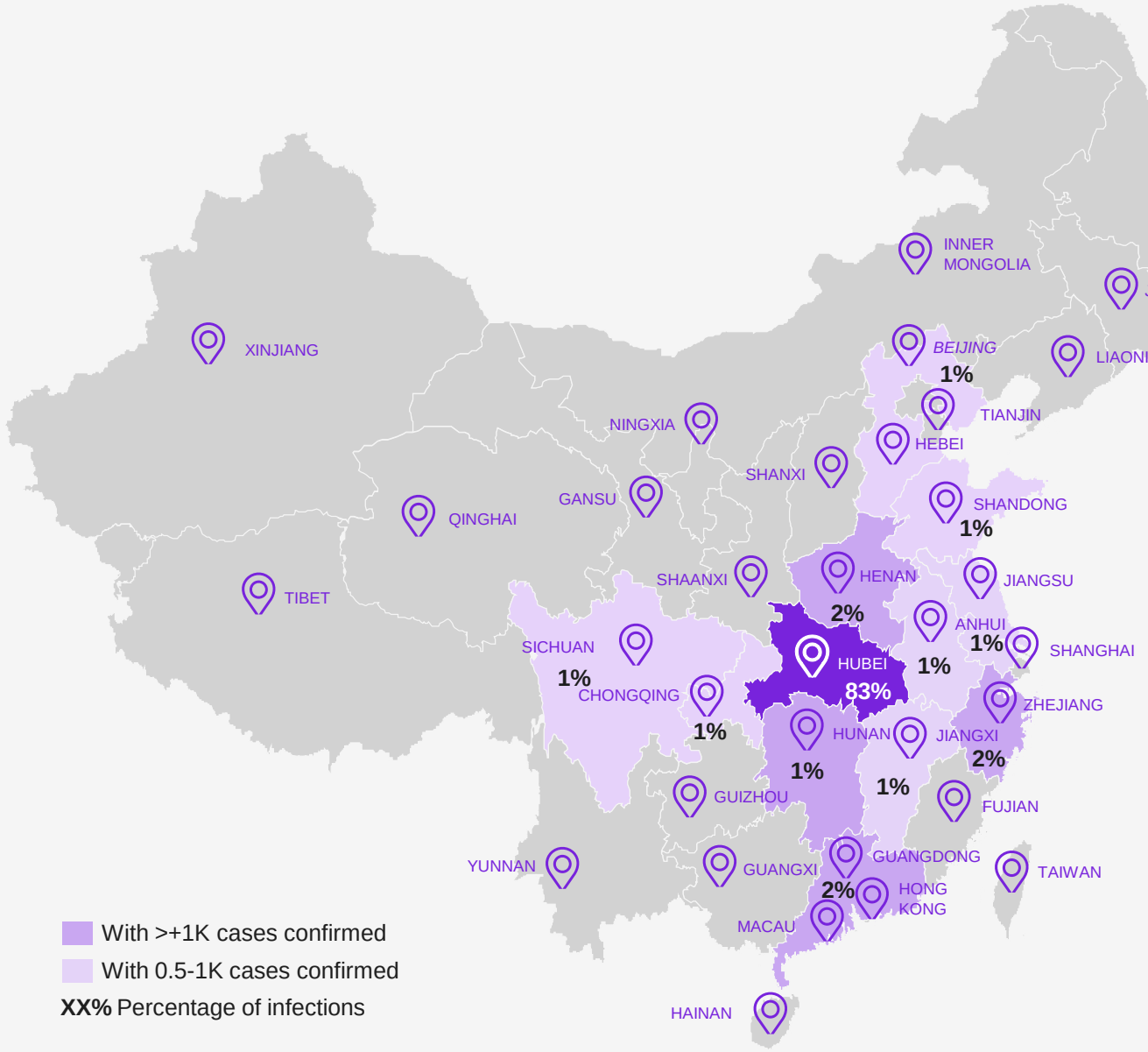
- Expect to **reach the peak** in late Feb. or Early Mar.

Impact on business

- Mass manufacturer return rate reached 76%
- Government is pushing the resumption of work, and except Wuhan, **all other 30 provinces** have started to resume to work
- **Increased resumption**[1] is expected in the 1~2 weeks, following the mandatory 14-day incubation period

Hubei, the epidemic epicenter, together with Guangdong, Zhejiang and Henan are the 4 most affected provinces in China, accounting for 89% of the total infected

Hubei is the most severely impacted province in China:
- With **83%** overall infection
- With **highest fatality rate** of 3% compared with other provinces at 1%



Industry cluster

Province	Clusters
Hubei	**Automotive, Electronics**
Henan	**Agriculture, Food & beverage**
Zhejiang	**Electronics, Apparel**
Guangdong	**Electronics, Machinery**
Jiangsu	Pharmaceutical
Anhui	Electronics, Automotive
Jiangxi	Metal materials
Hunan	Mineral products
Chongqing	Electronics, Automotive

Source: National Health Commission of P.R.C, Kearney analysis

Overall speaking, suppliers' current output capacity is the major bottleneck, while transportation has also considerable impact on global supply chain

Supply from China

No impact ○ ● Severe impact

	Manufacturing	Transportation	Customs/Quarantine for export
Affected industry/ sectors	– Global sourced automotive components/electronics – Apparel	– Consumer goods (especially those using shipping liners)	– Food and beverage – Livestock – Fresh goods
Level of impact			
Major challenge	– Lack of protective appliance, such as mask, which is essential for on-site work resumption – Mandatory 14 days quarantine policy – Partial work resumption mechanism due to people quarantine policy, and on-site related job such as production /assembly is severely impacted – Unachievable full capacity	– **Ocean**: noticeable impact on ocean lines through drops in demand (leading to additional idle capacity) and supply (ships cancellations) – **Air**: severely impacted with price surge, and capacity drop both for belly cargo and freighters – **Land**: paralyzed due to geographical quarantine, line haul transit time significantly extended or interrupted	– China doesn't adopt extensive quarantine measures against export – Foreign countries has started to enforce quarantine on certain product categories – Overall speaking, large-scale embargo is of low feasibility

Source: Kearney

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Labour intensive industry remains severely impacted due to quarantine policy which induced low level of work resumption[1]

Work Resumption rate

Automotive

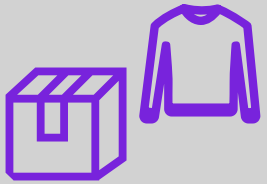
<50%

- **Parts supplier partially resumed from Feb. 10th.**
- Parts supplier in Wuhan not resumed yet

Electronics

40-60%

- Wafer fabrication, PCB and LCD panels less impact due to nature of continuous production
- **Assembly related process mostly affected**, ex. Foxconn only recovered 10% capacity



Consumer goods

10-20%

- **Impact is differentiated** depending on goods categories (e.g. SEA imports of Chinese manufactured F&B goods ranges from ~1-20%, against ~50-80% for apparel)
- Multiple segments in apparel supply chain are affected (labor intensive), especially those in **Zhejiang province**

Current status

Potential risks

- Upstream supply suspend due to **people quarantine**
- **Protective appliance shortage**
- Employee **safety first policy**, stoppage still possible at outbreak
- Low automation level/**labour intensive procedures mostly affected**, such as assembly
- Assembly/production line not fully resumed, although management staff is partially resumed to work.

Current work arrangements

- Non-production department resumed
- Partial production capacity resumed (production plan subject to demand)
- Flexible work/remote work
- A/B/C shift

1. Available data as of Feb. 13th
Source: desk research, Kearney

Automotive: All major automotive suppliers have postponed resumption, especially those in Wuhan…

Tier 1 suppliers in Wuhan

Emergency preparedness

		Work stoppage arrangement	Back up plan
Webasto Feel the Drive	Auto sunroof, heating and air conditioner	– Closed Munich HQ on Jan 29th (8 employees infected after back from China) and reopened on Feb 12th – Cancel all trips to China for the next 2 week, starting from Jan. 31st	– No specific plan announced
BOSCH	steering system, thermal technology	– Tentatively resume from Feb. 14th – Cancelled all trips to china until end of Feb	– No specific plan announced
F.tech ZHONGSHAN	Breaking system	– Closed production in Wuhan	– Leverage capacity in Philippine plant – Plant to transfer more capacity to other places if epidemic remains
faurecia inspiring mobility	Seat, interior, exhaust system	– Subject to OEM (Dongfeng Nissan, Dongfeng Peugeot Citroen) – 6 plants in Hubei province still on shutdown, the other 52 will reopen on Feb 21st (will be working at less than 50% of capacity)	– No specific plan announced
Valeo 法雷奥	Lighting, R&D	– 4 plants in Hubei province still shutdown (earliest restart on Feb 21st), the other 32 plants have reopened but are not at full capacity	– No specific plan announced

Over **500** auto suppliers run operations in Wuhan, **54** of which are **fortune 500 companies**

Source: desk research, Kearney

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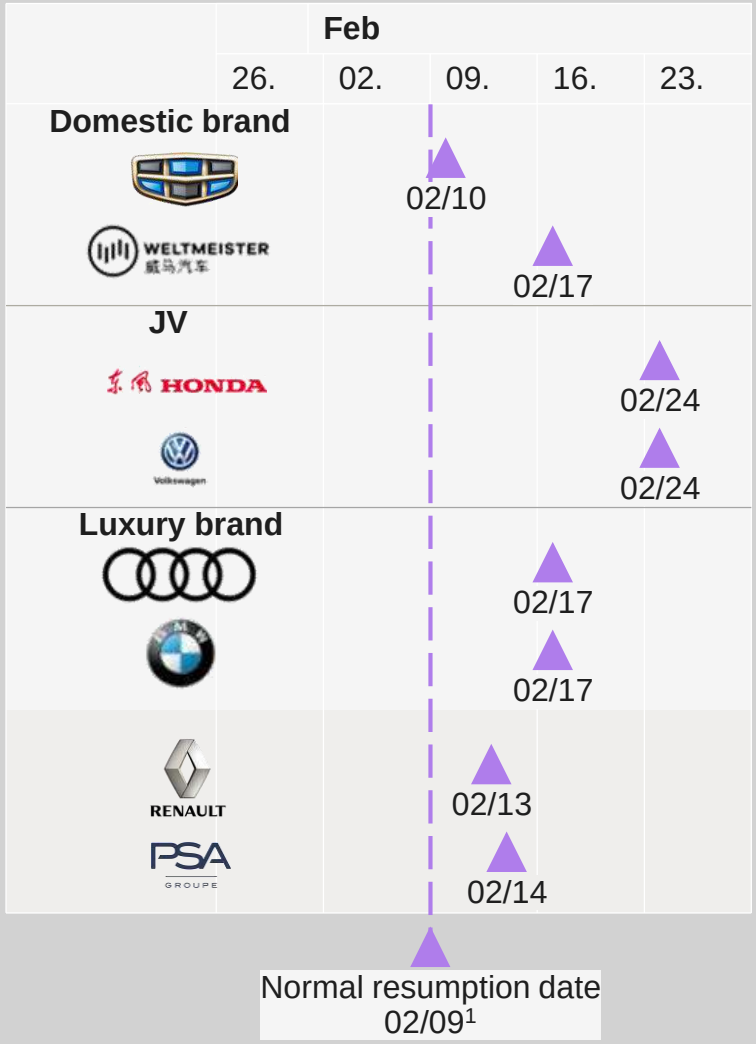
Automotive: …which has led to ripple effect to domestic and overseas OEM, postponing or interrupting production

China OEM postponed work resumption; flexible shift is adopted, therefore full capacity is not realizable



1. Following extension of Chinese New Year's period by China's State Council
Source: China's State Council, desk research, Kearney

As the supply chain interrupted, overseas OEM starts to face supply shortage

- Closed **3** production lines till Feb. 17th in Kyushu plant, with **3K vehicles affected**
- Stoppage at 7 factories due to wire-harness shortage, accounting for **40%** of global production capacity, restarted on **Feb 12th**
- Closed Pyeongtaek plant from **Feb. 4th to Feb 13th**, due to assembly circuit shortage,
- **Closed 3 plants** from **Feb. 10th to Feb 12th** due to wire harness shortage
- Plant closed in Serbia due to audio system component shortage, will resume work before end of Feb
- Shanghai plant closed on **Jan. 30th** and reopened on **Feb 10th**. Model 3 production **postponed by 1.5 weeks**
- Nissan closed part of its production line in Kyushu, southwest Japan, on **Feb. 14 and 17**, and will also halt output on **Feb. 24**

Consumer goods: Zhejiang province is the cluster for apparel manufacturing, and the slow resumption will eventually affect retailer's stock

- **Seasonal categories, and apparel** are major sourced categories
- The work resumption delay will **have "ripple effect"** on the whole value chain, bringing stock and logistics under pressure

Zhejiang concentrates most of apparel supply chain production steps

Value chain	Spinning	Grey fabric weaving	Dyeing printing	Process-ing[2]	Fabric whole-sale	ODM (export)	Retailer
Industry cluster	**Zhejiang**	**Zhejiang** Jiangsu Henan	**Zhejiang** Jiangsu	**Zhejiang**	**Zhejiang** Guangdong	Jiangsu Shandong Liaoning Hebei	Not specified

Apparel financial performance in China A-share market

Among 54 listed stock..

13 ↑

41 ↓

Biggest **drop of 37.42%** compared with the beginning of the year 2020

…3/4 of the market value drops

- Affected by the factory stoppage and shipment delay, seasonal categories are mostly affected.
- According to our observation, most suppliers are not resumed yet

Walmart Shenzhen global sourcing office

1.. Processing includes miscellaneous steps, such as: Embroidery, coating, washing, fabric maintenance, etc.
Source: Public information, Kearney

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Beside issues with their Chinese suppliers, global companies still face tremendous challenge brought by paralyzed logistics network

Logistics is highly related (**high elasticity**) to demand by producers' output, and should recover soon once demand resumes (assuming government policy also becomes supportive)

Current situation

Ocean

- Huge capacity surplus indicates **plunge in demand side**
- Long distance liners are affected with 30 ships cancelled on **China to Mediterranean lanes**, with additional impact on short distance liners, such as companies operating to South-East Asia
- **Demand side is the bottleneck**

Air

- **Belly cargo most affected**, with ~90%[1] of the scheduled flights suspend/adjusted
- Market responded with abrupt air freight surge, also volume shifting to freighter, which are less impacted
- **Capacity side is the bottleneck**

Land

- Logistics: **collapsed** due to traffic restriction/block enforced by quarantine policy
  - Traffic to Wuhan dropped by **-87%**[1]
- Cross provincial lines haul transit time has been significantly extended or interrupted
- **Demand and capacity are both affected**

No impact ○ ● Severe impact

Future trend

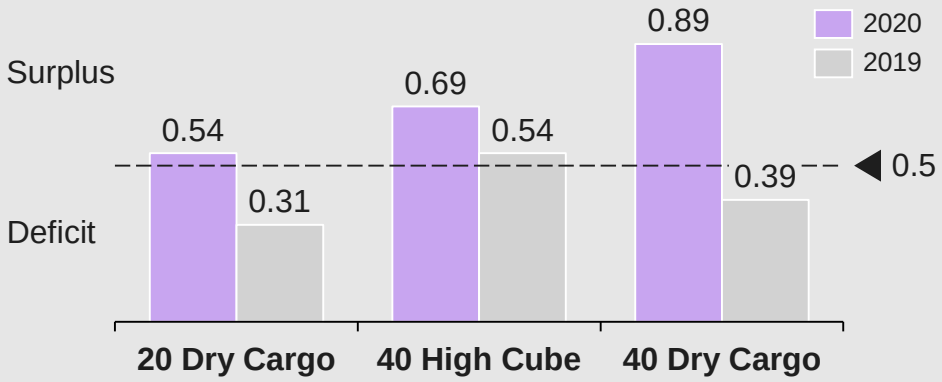
- In general, as the infrastructure to overall economy, **domestic logistics will resume sooner** than other industries, backed with strong support from government.
- For domestic logistics, **3 factors** affected logistics resumption to full capacity: **demand, government policy** (delayed work resumption, quarantine, road block etc.), and **labor shortage,** among which government policy is the major element affecting logistics efficiency

1. Available data as of Feb. 13th
Source: G7 logistics newsletter, Kearney

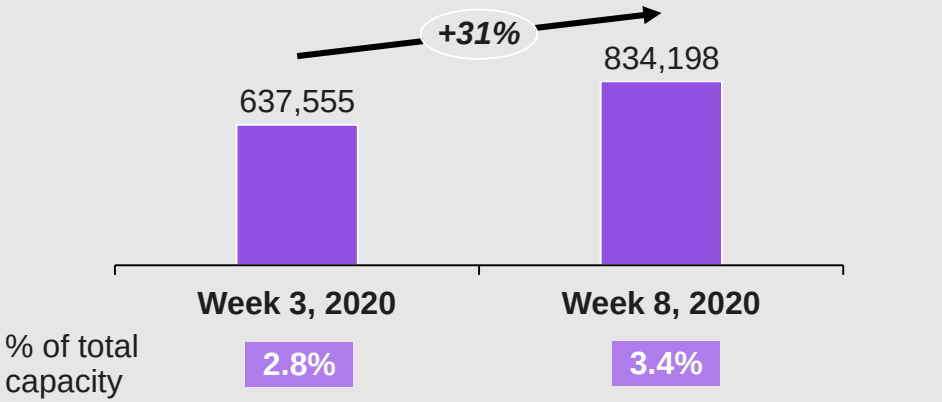
Ocean transport: Drop in liner demand is mostly caused by the declining demand, with additional shipping constraints due to lanes cancellations

Container availability lay-up in major Chinese ports and increased idle capacity in global shipping indicate a plunge in demand

Container Availability Index for Shanghai[1] (Week 8)



Total idle capacity in global box shipping fleet[2](TEU)



Notes: 1. Container x-Change; a value over 0.5 indicates a surplus of containers, deficit vice versa.
2. Lloyd's List Intelligence
Source: Desk research, Kearney

Supply and Demand constraints both have noticeable impact on ocean shipping operations

- A large number of **blank sailings** were implemented from the end of January to coincide with the Chinese New Year holidays
- Global container lines such as Maersk and Hapag Lloyd announced **reducing Asia-Europe capacity**
- **30 ships** on China to Mediterranean lanes **were cancelled by late February, taking** out ~50% of scheduled departures

International ocean shipping features long lead time, long distance and high predictability with a well-ahead reservation cycle of vessels, operators have **more leeway to adjust shipping schedules to minimize impact on operations.** However **significant carefulness measures** (ships cancellations) are scheduled to have an impact

Destination countries requiring less than 14 days of travel (e.g. China to SEA) are subject to **more cautiousness** from authorities.

Air transport: Transport capacity has been slashed due to passenger flight suspension, and therefore caused mild surge in air freight

Reduced belly cargo capacity (accounting for ~50% of total air cargo capacity)

- 90% of passenger flights to mainland China have been suspended by Cathay, suspension estimated to be through to the end of April
- Operators slashed belly cargo capacity, e.g. Lufthansa scaled back freighter services in response to crew health concerns and uncertain demand

Mild rate climb also due to local manpower restrictions in China

- Due to quarantine situation, freight forwarder staff in China are required to work from home
- Ground handlers such as truckers, warehouse staff, and manufacturing staff would not be able to return to work for longer than expected, causing further rate volatility

Less affected freighter flights but also downscale capacity

- Freighter operators have also been pulling capacity out of Hong Kong and China
- Reduced belly capacity might trigger the some demand shift towards freighters to expedite delivery, but only to a limited volume

25,000 fewer flights[1] operated to, from and within China during the week of Feb. 3 than a fortnight ago, with services suspended by **30** airlines[1]

Air freight surge out of reduced airlines[1]

Shanghai to Los Angeles ~**+12%**

Shanghai to Europe ~**+9%**

Shanghai to Amsterdam ~**+19%**

Shanghai to London ~**+4%**

"One of our customers is **moving a shipment to air freight** because they do need goods before the intended arrival date"

A rail operator at Davies Turner in Britain.

1. Available data as of Feb. 13th
Source: TAC Index and UPS official website, OAG, Kearney

Land transport: Inbound ground logistics has been significantly impacted due to road shut down and traffic control[1]

Inbound transportation to Wuhan
Compared with last year

-87%

Ground logistics within Hubei to Wuhan
Compared with last year

-65%

– Traffic restrictions/blockage (especially on inbound traffic to Wuhan) stemming from the quarantine policy have caused a **logistic collapse**, with significant **extension or disruption** of cross provincial transit time
– **Demand and capacity** have both been disrupted in the wake of quarantine measures taken by local and central authorities, as inhabitants and logistics professionals are both affected
– Road transport capacity recovery is **still ongoing** in light of continued public measures to halt infections progress

1. Available data as of Feb. 13th
Source: G7 logistics dashboard, CFLP, Kearney

Extensive embargo is of low possibility but quarantine will be enhanced in certain product categories, and might decrease efficiency

Outbound quarantine initiatives in China：

- **No specific initiatives** have been adopted**, limited impact** on export
- According to *Frontier Health Quarantine Law of the P.R.C.*, 'all goods that may spread quarantinable infectious diseases shall be subject to quarantine inspection and shall not be allowed to leave China without the permission of the frontier health and quarantine organ', therefore **the outbound procedures might take slightly longer**

Promote precise quarantine, strengthen sampling and laboratory testing to resolutely prevent outbound and inbound viral spreading.

- Head of China Customs

Source: public information, Kearney

Inbound quarantine measures of destination countries:

U.S.:

- Certain categories, such as agricultural products has been **banned for import**
- Crews are **required to stay on board** in case of staying in China in the past 14 days

Other countries:

- **Indonesia** has stopped import of all **live animals** from China and are considering banning food and beverage
- **Jordan** has **banned import of all animal and vegetables** from China
- **India** has ordered checking of **agriculture and livestock** imports from China

WHO recommendations:

- On 31st Jan. (BJT), WHO defined Coronavirus as **Public Health Emergency of International Concern (PHEIC)**
- Temporary recommendations are provided to help prevent the international spread, e.g. quarantine check of goods
- However, travel or trade suspensions are not recommended by WHO

Comments:

- According to a survey about H1N1, only **11%** of interviewed countries issued temporary bans on importing goods from infected areas, although **70%+** conducted quarantine check
- Considering the infectivity and fatality rate, **extensive embargo are of low possibility** and quarantine of certain categories might be enhanced

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