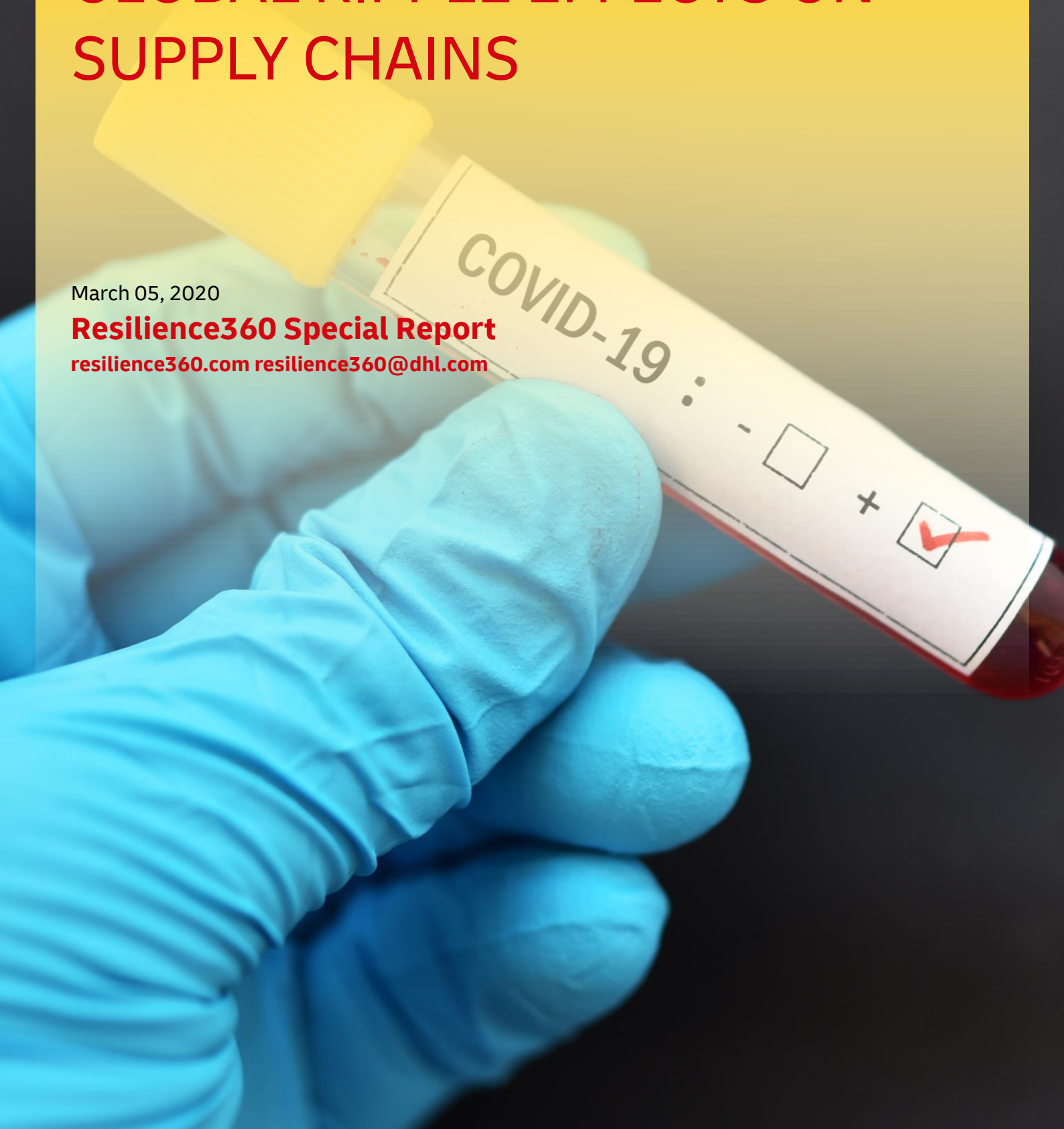


COVID-19 OUTBREAK: GLOBAL RIPPLE EFFECTS ON SUPPLY CHAINS

March 05, 2020

Resilience360 Special Report

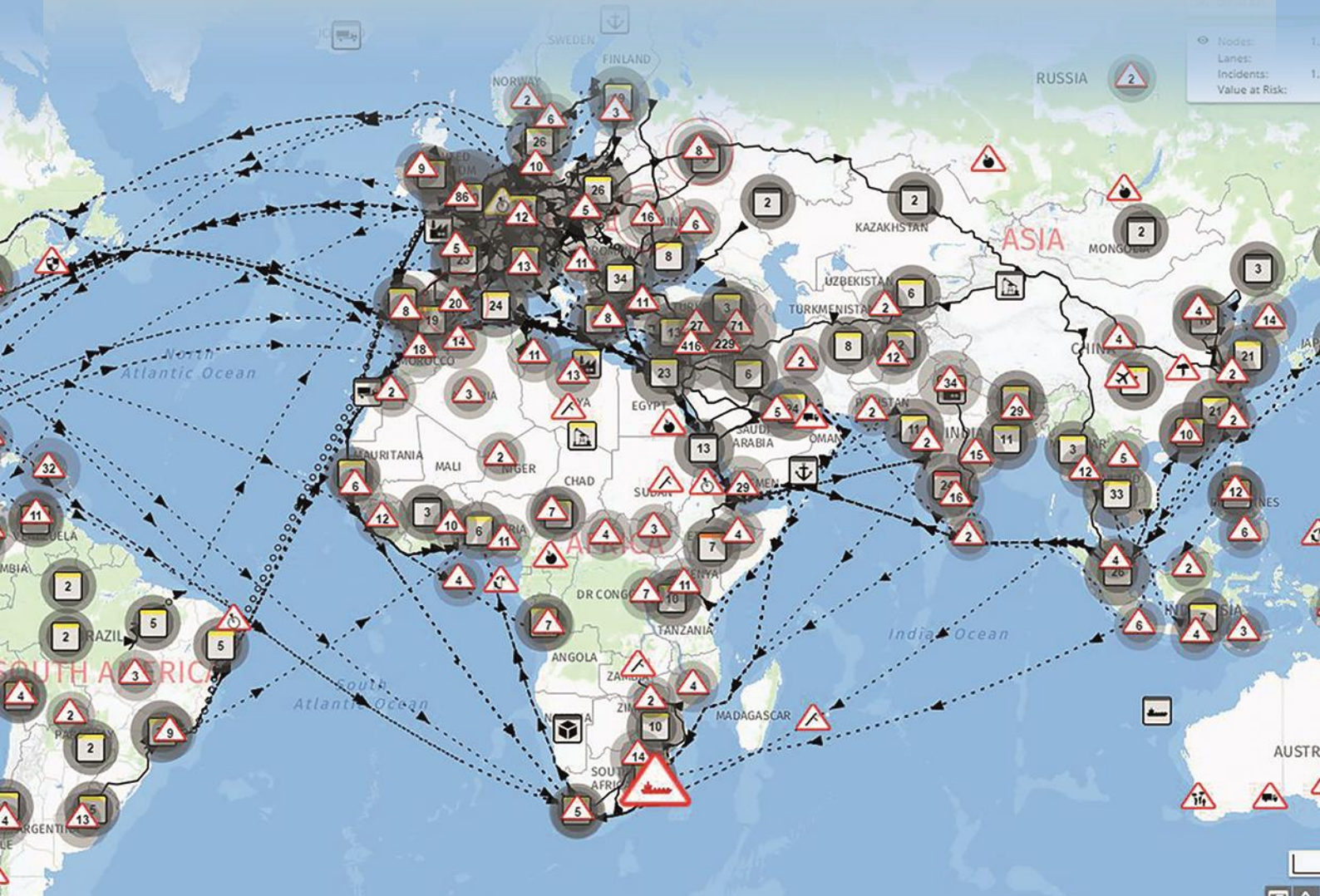
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EXECUTIVE SUMMARY

- At a global level, the recent surge in COVID-19 cases in South Korea, Italy, and Iran has triggered government-mandated lockdowns and transport restrictions for affected regions, prompting fears that temporary border closures could be enforced, which would severely impact rail operations and cross-border roadway transport routes.
- Although the situation has improved within China, serious challenges remain as factories and companies seek to resume business operations. The crippling effect of the COVID-19 on the Chinese economy may take months to recover from as authorities speed up measures in less affected areas to encourage laborers to return to work and lift transport restrictions in a bid to boost industrial production.
- While the situation for ocean freight has improved, numerous blank sailings over the past weeks and reefer capacity constraints in the Port of Shanghai, Tianjin, and Ningbo due to plug shortages could be further exacerbated as demand increases once factories in China resume regular production levels. Trucking capacity for rail freight has also gradually improved throughout the country for major transport hubs.
- In South Korea, Resilience360 data shows that approximately 82 percent of manufacturing, supplier, and logistics locations within Daegu belong to the automotive industry. Other affected industries in the country include high-end electronics and semiconductor manufacturers. Any prolonged shutdown can therefore have a major impact on the production and assembly of electronic goods in China, which sources mainly from South Korea and Japan.
- In Italy, authorities have sealed off several towns in the regions of Lombardy and Veneto after multiple cases of the COVID-19 virus were confirmed. Economic activity has largely been suspended since February 21 in the affected areas, where numerous manufacturing facilities active in the automotive (52.94 percent), life sciences and health care (29.41 percent) and chemicals (11.76 percent) sectors operate.
- Export bans for drugs and medical equipment, in particular in countries producing a majority of such material such as India and China, could cause global supply shortages that will hamper the effectiveness of authorities' responses, further delaying the containment of the outbreak.

ABOUT RESILIENCE360



Resilience360 is an innovative, cloud-based platform that helps companies to visualize, track and protect their business operations. The solution facilitates intuitive supply chain visualization, tracks shipments and ETAs across different transport modes and enables near real-time monitoring of incidents capable of disrupting supply chains. Resilience360 easily integrates with business systems and helps companies keep track of risk in combination with their business performance indicators. It enables companies to better ensure business continuity, building risk profiles based on over 30 risk databases, and identifying critical hotspots using heat-maps to mitigate risks and to turn potential disruptions into a competitive advantage.



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RESILIENCE360

BACKGROUND

The outbreak of the COVID-19 novel coronavirus threatens to have even greater global implications after the number of reported international cases quickly escalated worldwide beyond China's borders over the past 10 days. As of March 5, 12:00 GMT, COVID-19 has sadly left over 3,286 dead, with over 95,748 global cases being reported.

In particular for South Korea, Italy, and Iran, the sudden surge in COVID-19 cases has triggered government-mandated lockdowns and intensified quarantine efforts, disrupting activities at production facilities and logistics operations in the affected cities and regions. Furthermore, businesses outside of areas with many cases have increasingly enacted contingency plans due to the discovery of employees infected with COVID-19, which include home office measures or closing down operations for a specific period of time.

On a national level, land transportation has started to experience disruption due to border closures. In the Middle East, both Pakistan and Turkey closed land borders with Iran, while in Europe, Austrian authorities temporarily halted rail traffic on the critical Brenner Pass with Italy after several passengers were feared to have contracted the COVID-19 virus.

DEVELOPMENTS IN CHINA

In a grim reflection of COVID-19's devastating impact on the Chinese economy, factory activity shrunk at its fastest ever pace in February after the country's official Purchasing Managers' Index (PMI) fell to a record low of 35.7 from 50.0 in January, according to the National Bureau of Statistics (NBS). New export orders received by Chinese manufacturers have also declined amid mounting pressure on exporters from delayed shipments and canceled orders.

Wuhan and Hubei province remain under a complete production and travel shutdown until March 10 that may continue to be prolonged further, depending on how the situation evolves. To boost production and work resumption in less affected areas, Chinese authorities have sought to divide places outside of Hubei Province and Beijing into low, medium, and high-risk areas based on the severity of the outbreak. For low-risk areas, local governments are actively reducing restrictions for on-road travel to help businesses resume operations. Twenty provinces have lowered their emergency response levels for the coronavirus. Guangdong, Jiangsu, Ningxia, Shanxi, Sichuan, Xinjiang, Fujian, Jilin, Anhui, and Zhejiang have lowered their response levels from Level 1 to 2 (1 being the highest out of 4 levels). Gansu, Guangxi, Guizhou, Hainan, Inner Mongolia, Liaoning, Qinghai, Shaanxi, Jiangxi, and Yunnan have lowered it to Level 3.

At China's major container ports (with the exception of Wuhan's barge service), the situation appears to be improving as the cargo backlog has loosened with dockworkers, customs officers, tugboat pilots, and other workers gradually returning to work despite a shortage of truck drivers able to bring containers in and out of the ports. However, carriers have announced a number of blank sailings over the past few weeks with new cancellations being made without the usual notice periods, which threatens to create equipment imbalances and impact capacity globally.

Terminals at the Ports of Shanghai, Ningbo, and Tianjin are reportedly facing constrained capacity for refrigerated container imports due to an insufficient supply of power plugs, which has forced some shippers to divert reefer cargo to other ports and will likely create port congestions overall. The situation is expected to deteriorate as more factories resume production with greater demand for space and equipment triggering more capacity shortages. Dangerous goods cargo storage is also nearing capacity at the Port of Ningbo with the possibility that such cargo may face significant delays or rejection due to ongoing circumstances.

CHINA DEVELOPMENTS

Rail freight operations have also gradually resumed. Freight train traffic has restarted between Hebei Province and Central Asian states, although rail freight from Wuhan to Dourges in Pas-de-Calais, France remains suspended until end-April. Trucking capacities for rail freight have also picked up with less-than-truckload (LTL) services still unavailable in Xi'an but partially resuming in several cities in Guangdong, Shanghai, Tianjin, Qingdao, Suzhou, and Hangzhou. Sixty percent of trucking resources for full-container-load (FCL) have also resumed.

Despite ongoing efforts, it may take months before China is able to return to full production capacity. While some regions have allowed firms to return to work and delay inspections later, large pools of Chinese migrant labor remain trapped in certain provinces and are subjected to 14-day requirements upon arrival. This problem is more pronounced for smaller suppliers and businesses – who are running well below normal capacity due to labor shortages – that have less resources to ferry in laborers and are reporting severe financial and cash flow pressures. Although labor shortages and transport constraints are beginning to ease, some factories may also not be able to resume normal production at full capacity if the COVID-19 outbreak in other countries create difficulties in sourcing intermediate goods.

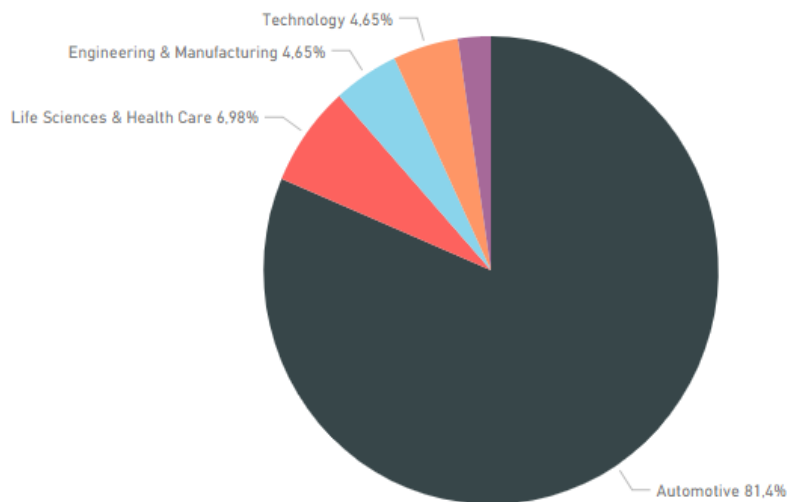
GLOBAL DEVELOPMENTS

During the initial stages of the COVID-19 outbreak in China, overseas manufacturing operations experienced partial disruptions due to a lack of components typically sourced from China. For instance, production lines at car makers in Japan (Nissan), South Korea (Hyundai) and Europe (Fiat Chrysler) were temporarily suspended for a few days.

Over the last 7 days, however, the rapid spread of infected coronavirus cases in countries outside of China has led to more significant impacts on overseas manufacturing and, partially, logistics operations, with many businesses having to adapt to government-mandated quarantine zones as well as voluntary disinfection and quarantine efforts. Four main clusters, namely in South Korea, Italy, France and Germany, have emerged over the past week which have resulted in business disruptions that range from home-office requirements to complete or partial closures of headquarters or production sites.

SOUTH KOREA

Following a surge in coronavirus infections, the South Korean government raised the national disease alert to its highest 'red alert' level and declared the city of Daegu and neighboring Cheongdo County as special management zones. No traffic restrictions have so far been implemented, but the population has been asked to stay home and wear masks. It was not immediately clear how long the measures would remain in place. Several industrial manufacturers have reported disruptions to varying extent, even outside of the affected areas. Among the affected businesses were plants of technology companies Samsung Electronics, LG Innotek and LG Display in Gumi, semiconductor maker SK Hynix in Icheon as well as Hyundai Steel in Pohang. Any prolonged shutdown of key tech and semiconductor suppliers could in turn impact the production and assembly of electronic goods in China which sources mainly from South Korea and Japan.



Manufacturing and supplier locations in Daegu, South Korea; source: Resilience360

Daegu's significance for global supply chains stems from the fact that it is located within the largest automotive cluster in the country, which spans from Daegu to Gyeongbuk and Gyeongnam and produces more than one-third of all vehicle units in South Korea per year. Resilience360 data shows that approximately 81.4 percent of all manufacturing, supplier and logistics locations in Daegu belong to the automotive industry. Among the largest auto suppliers present in the city are Valeo, Delphi, Ecoplastics, and SL Lighting. The remaining 18.6 percent can be attributed to companies active in the life sciences & healthcare, engineering and technology sectors.

ITALY

Similar to the situation in South Korea, Italian authorities have sealed off several towns in the regions of Lombardy and Veneto after multiple cases of the COVID-19 virus were confirmed on February 21. Most businesses have been closed and all movement within the area has been prohibited until at least March 8. The affected towns in Lombardy include Codogno, Castiglione d'Adda, and Casalpusterlengo as well as Fombio, Maleo, Somaglia, Bertonico, Terranova dei Passerini, Castelgerundo, and Sanfiorano. In Veneto, the town of Vo has been particularly affected.

Economic activity has largely been suspended since February 21 in the affected areas, where numerous manufacturing facilities active in the automotive (52.94 percent), life sciences & health care (29.41 percent), and chemicals (11.76 percent) sectors operate. Several of these have reported disruption to their operational activities. Most prominently, the main production center of MTA Advanced Automotive Solutions, which produces fuse boxes for the car industry, was closed for several days last week. This forced the company to warn its customers such as Fiat Chrysler, PSA Group, and Jaguar Land Rover, of potential consequences to their production if it could not resume operations. After appealing to authorities, it obtained permission to restart some production, albeit at lower capacity. Even outside the quarantined towns, companies operating in Italy have reported impacts to production due to infected workers, including chemical makers Lamberti and Sutter Industries; consumer goods maker Unilever; and luxury fashion producer Giorgio Armani.

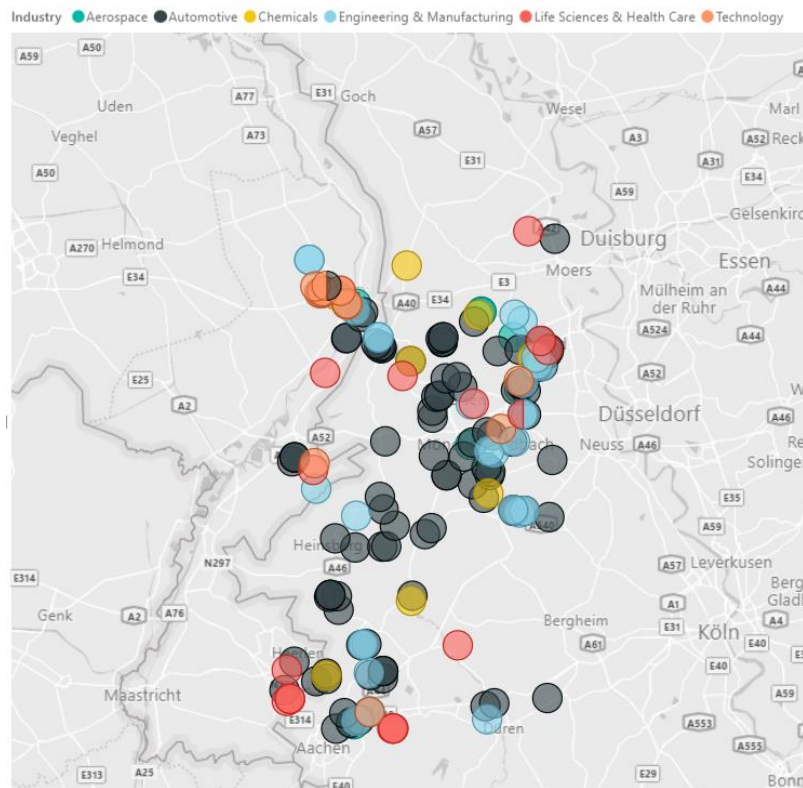
FRANCE

About 212 people have so far been infected in France, with the Oise department north of Paris being considered the epicenter of the recent outbreak in the country. Authorities have ordered the closure of more than 100 schools, and have asked students to stay home until further notice. Residents were also asked to limit their journeys.

There have been reports on the potential of truck drivers being denied access to warehouses in the department, while disruptions to manufacturing operations is possible should travel restrictions and home quarantine measures be extended. The department has several aerospace and automotive clusters: parts makers in the aerospace industry are located between the cities of Creil and Crepy-en-Valois in the south of the department, while automotive suppliers can be found in the cities of Lachapelle-aux-Pots and Compiègne.

GERMANY

While the number of confirmed cases of COVID-19 has soared past 200 in Germany in recent days, no widespread lockdown or quarantine efforts have so far been implemented. The first cases were reported at the end of January at the automotive supplier Webasto in Bavaria, prompting the company to close its headquarters for more than a week. Most recent cases, however, were reported in the densely populated region of North Rhine-Westphalia, and in particular within the city triangle of Aachen, Heinsberg, and Moenchengladbach near the Dutch border. Within the triangle, about 80 percent of facilities in the Resilience360 database are active in the automotive industry, with the rest supplying the engineering, life sciences & healthcare, and chemicals sectors. The affected area is likely to be a priority for German authorities should they decide to enact enhanced quarantine efforts.

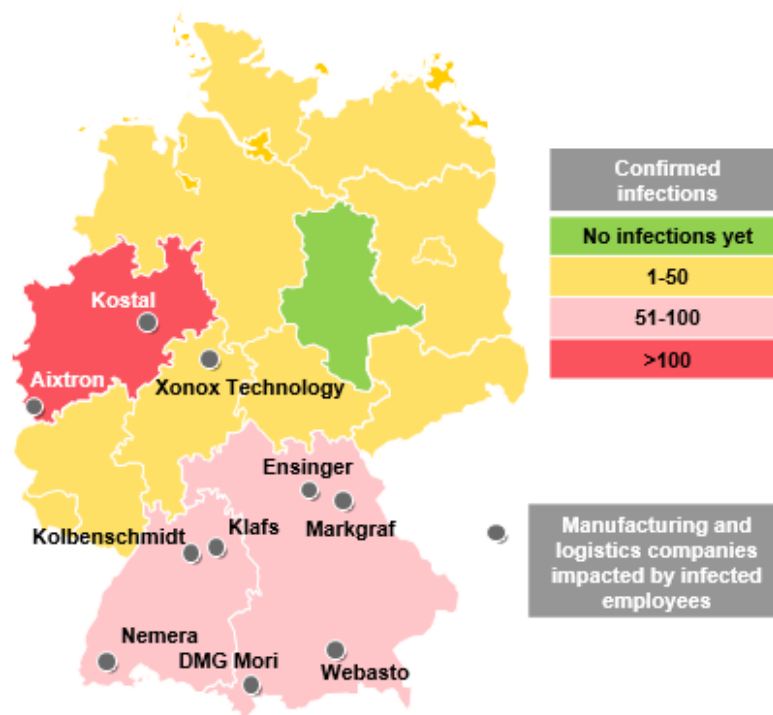


Manufacturing and supplier locations in the Aachen-Heinsberg-M'Gladbach triangle; source: Resilience360

GERMANY

Throughout Germany, infected employees have forced several companies to either temporarily suspend production to allow for time to disinfect facilities or ask employees in non-operational functions to continue to work remotely, sometimes while remaining under home quarantine. Most critically, Xonox Technology GmbH, a supplier of precision optics instruments to leading optoelectronics makers such as Carl Zeiss AG and Jenoptik, has shut down its production site in Huettenberg for 14 days due to the infection of one employee. In the automotive sector, infected employees also caused KS Kolbenschmidt GmbH to stop operations in Neckarsulm for two days, while DMG Mori, which supplies machines to medical device makers and aerospace customers, shut its production in Pfronten until at least March 5.

COVID-19 outbreak in Germany



Source: Open-source research by Resilience360

REST OF THE WORLD

Air Freight Capacity

Global air freight capacity has seen a decrease due to reduced passenger belly capacity, in particular from and to China, with passenger bellies making up around 45 percent of all capacity in and out of China. In addition, due to falling demand and international travel restrictions, large airlines such as Singapore Airlines, Delta, Lufthansa, and Cathay Pacific have been forced to reduce or cancel flights to and from South Korea until at least April 2020. Rates have reportedly increased from South Korea to markets across Asia Pacific due to reduced belly capacity in passenger flights. A growing number of airlines have reported financial losses due to the large amount of flight cancellations. The International Air Transport Association (IATA) projects that coronavirus-related losses in 2020 could hit USD 113 billion. On March 5, British Airline Flybe was the first airline to go bankrupt due to coronavirus.

Border Closures

In terms of border closures, Resilience360 has identified 24 jurisdictions worldwide that have enacted at least some form of control measures at their borders in response to the COVID-19 outbreak through the month of February and in early March. These include China, Hong Kong, Taiwan, Afghanistan, Pakistan, Mongolia, Laos, Myanmar, Nepal, North Korea, Vietnam, Kazakhstan, Iran, Iraq, Armenia, Russia, Slovenia, Cyprus, Slovakia, Turkey, Azerbaijan, Kuwait, Turkmenistan, and Syria.

In particular, the risk of further border closures in Europe is growing after Austrian authorities on February 23 halted rail traffic at the Brenner Pass, a critical corridor, for around four hours while several passengers on a train were tested for COVID-19. Due to virus checks, wait times of six hours were reported at the Croatian-Slovenian border crossing in Obrezje after Slovenian authorities earlier in the week indicated a willingness to close borders as a preventative measure if the outbreak in Italy spreads. The U.S. has also threatened to close off its southern border to Mexico to contain the virus, although no official action has been taken yet as of this writing.

Postal Disruptions

Postal disruptions and regulations restricting parcel shipments in several countries, such as the U.S., China, Austria, Sweden, South Africa, Thailand, and Italy, have been reported in recent weeks. Postal operators worldwide have taken extra precautionary measures including additional sanitization requirements or the temporary suspension of receiving shipments from affected areas.

REST OF THE WORLD

POSTAL DISRUPTIONS

Poste Italiane has restarted postal services in several municipalities across Italy as of March 3, but cautioned that it may take several weeks to clear the existing backlog. As of this writing, services still remain suspended for municipalities with the following postcodes: 26841, 26867, 26823, 26844, 26847, 26821, 26827, 26845, 26848, 26861, and 35030.

China Post is currently disinfecting postal offices, processing centers, and vehicles to ensure that COVID-19 is not transmitted via mail and is continuing to disinfect all parcels from Hubei province. In mid-February, China Post was reportedly storing undelivered transit mail which resulted in delays for parcels transiting through China onto other destinations, such as North Korea, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan, and Vietnam.

OUTLOOK

As China authorities shift their focus on controlling the outbreak in the still locked-down Hubei Province, factories across China gradually ramp up production as travel restrictions continue to ease across the country. However, electronics contract manufacturer Foxconn recently announced it only expected to resume normal production by the end of March, indicating that it might take even large companies still almost four weeks to regain pre-outbreak production levels. Air, rail and ocean freight schedules and rates are thus likely to remain disrupted into April and May, with ocean carriers warning of global equipment shortages.

Globally, clusters of infections are likely to continue to appear in different parts of the world, with authorities and companies likely reverting to measures of varying severity to curb the outbreak. Moreover, export bans for drugs and medical equipment, in particular in countries producing a majority of such material such as India and China, could cause global supply shortages that will hamper the effectiveness of authorities' responses, further delaying the containment of the outbreak.

RECOMMENDATIONS

- **Understanding your critical vulnerabilities:** Sudden supply shortages for critical components or over-dependence on a single supplier or sourcing from China has meant that supply chain managers will need to focus on diversifying their risk exposure by shifting production lines elsewhere or creating local sourcing alternatives. For instance, some tech manufacturers are reportedly considering sea or air transport routes to import needed components from China into Vietnam due to border restrictions, but it remains unclear whether they will be able to meet production schedules and demand.
- **Monitor issuing of force majeure certificates:** Another phenomenon to monitor is the extent to which firms will be provided financial and legal protections from state governments through the issuance of force majeure certificates. Companies will need to determine where the affected supplier is within their supply chain, which law the contract is related to, and whether they will have to accept the conditions if force majeure is declared. In the event that a party fails to comply with its contractual obligations, firms will need to look into whether the force majeure takes place on the actual date in which it occurs or when the notice is formally provided.
- **Improving supply chain visibility:** The vast majority of global companies still remain unaware of what their risk exposure to the COVID-19 outbreak is and lack sufficient knowledge of the locations that provide parts to their direct suppliers. Supply chain risk management tools help mitigate these impacts by improving visibility and can help monitor instances of potential financial stress and cash flow constraints facing suppliers – particularly in China – as the situation continues to evolve.
- **Adopting flexible human resourcing strategies:** Given the challenges posed through transport restrictions or companies internally banning movement of employees to certain facilities, a backup plan will be needed to allow for more flexible human resourcing. Understanding which functions require more automation and where remote-working arrangements can be effectively deployed will be essential to keeping operations running smoothly and mitigating further disruptions.

APPENDIX A: FLIGHTS SUSPENSIONS AND CANCELLATIONS FOR MAJOR AIRLINES (AS OF MARCH 5, 00:00 GMT)

Airline	Jurisdiction	Region	Status
American Airlines	U.S.	North America	Extended the suspension of China and Hong Kong flights through April 24. Suspending all U.S. flights (New York and Miami) to Milan through April 24.
Air Canada	Canada	North America	Extended the suspension of its flights to Beijing and Shanghai until March 27 and suspension of Toronto to Hong Kong flights from March 1 to March 27.
Air China	China	Asia	Canceled flights to Athens, Greece from February 17 to March 18. Resumed flights from Chengdu to Frankfurt following 21-day suspension.
Air France	France	Europe	Suspended flights to and from Mainland China through majority of March.
Air India	India	Asia	Suspended flights to Shanghai and Hong Kong until June 30. Cut flights to Italy, Japan and South Korea. Flight frequencies to Tokyo reduced from five to four per week and those to Milan, Seoul, and Rome cut to per week.
Air Seoul	South Korea	Asia	China flights suspended from January 28 until further notice. Flights canceled to Boracay, Kota Kinabalu, Siem Reap, Da Nang, Hanoi, and Nha Nha Trang.
Air Tanzania	Tanzania	Africa	Planned to begin charter flights to China in February, postponed its maiden flights.
Air Mauritius	Mauritius	Africa	All flights to China and Hong Kong suspended.
Asiana Airlines	South Korea	Asia	Suspended all flights to Daegu until March 9.
Austrian Airlines	Austria	Europe	Flights suspended to Mainland China until end-February. Reduced flights from Vienna to Milan, Venice, Bologna, Florence, Rome, and Naples by 40 percent through end of April.
British Airways	U.K.	Europe	Flights suspended to Mainland China from January 29 to March 31.
Cathay Pacific	Hong Kong	Asia	Reduced flight capacity to and from Mainland China by 50 percent or more from January 30 to end-March as part of Hong Kong's Government Response Plan. Flights to and from Milan and Rome between February 1 and March 28 canceled.

APPENDIX A: FLIGHTS SUSPENSIONS AND CANCELLATIONS FOR MAJOR AIRLINES (AS OF MARCH 5, 00:00 GMT)

Delta Airlines	U.S.	North America	Services suspended for Minneapolis-Seoul route through April 30. Reducing flights from Seoul to Atlanta, Detroit and Seattle to five times a week. Delaying starting new flights to Seoul and Manila from March 29 to May 1. Suspended all flights from the U.S. to China from February 6 until April 30.
Emirates	UAE	Middle East	Canceled flights for two routes from Dubai to Tehran and Bahrain.
El Al Israel Airlines	Israel	Middle East	Suspended flights to Hong Kong and Beijing until May 2.
Ethiad Airways	UAE	Middle East	Suspended flights to Hong Kong until March 28 due to low demand.
Japan Airlines	Japan	Asia	Canceled flights between Tokyo-Seoul and Busan routes and cut down flight capacity for Osaka (Kansai)-Taipei route.
Iberia Airlines	Spain	Europe	Extended suspension of Madrid-Shanghai route from February 29 to end-April.
Kenya Airways	Kenya	Africa	Suspended all flights to Mainland China from January 31 until further notice.
Korean Air	South Korea	Asia	All flights to Daegu suspended until March 28.
KLM	Netherlands	Europe	Extended ban up for flights to Mainland China until March 28.
Kuwait Airlines	Kuwait	Middle East	Suspended flights to Iran, Italy, and Thailand for foreseeable future. Flights to South Korea also banned by the Kuwait Directorate General of Civil Aviation.
Latam Airlines Group	Chile	Latin America	Canceled its direct flight between Sao Paulo and Milan from March 2 until April 16.
LOT	Poland	Europe	Extended flight suspension until March 28. Canceled Budapest-Seoul flights on March 3, 10, 17 and 24.
Lufthansa	Germany	Europe	Cut a number of short and medium-haul flights and suspended flights to Tehran until April 30. Reduced frequencies to Milan, Venice, Rome, Turin, Verona, Bologna, Ancona, and Pisa through March. Reduced Frankfurt-Seoul flights from March 5 to April 24.

APPENDIX A: FLIGHTS SUSPENSIONS AND CANCELLATIONS FOR MAJOR AIRLINES (AS OF MARCH 5, 00:00 GMT)

Qatar Airways	Qatar	Middle East	Suspended all flights to Mainland China from February 1 until further notice.
Royal Jordanian Jordanian Airlines	Jordan	Middle East	Suspended flights between Amman and Rome until further notice from February 26
SAS	Denmark-Sweden	Europe	Canceled flights to northern Italy and will cut short-haul capacity over March and April. Flights suspended to and from Milan, Bologna, Turin and Venice from March 4-16.
Saudia	Saudi Arabia	Middle East	All flights suspended to Mainland China on February 2 until further
Singapore Airlines	Singapore	Asia	Suspended select flights to the U.S., Indonesia, Japan (Narita and Haneda), U.K., Turkey, Germany, South Korea (Seoul and Busan), India, Maldives, Bangladesh, Sri Lanka, Nepal, Dubai, South Africa, Australia, New Zealand, and Taiwan (Taipei).
Swiss International Airlines	Switzerland	Europe	Flight suspensions extended to and from Beijing and Shanghai until April 24. Added Iran and Italy to list of countries with no or limited service. Suspended flights to Tehran, Milan, Florence, Rome, and Venice.
Turkish Airlines	Turkey	Europe	Suspended flight services to Iran except Tehran until March 10 as per directive from civil aviation authorities.
United Airlines	U.S.	North America	All flights to Mainland China suspended from February 5 to April 23. Service to Hong Kong suspended from February 8 to April 23.
Vietnam Airlines	Vietnam	Asia	Suspended flights to Mainland China, Hong Kong and Macau from February 1 to April 30 in line with the Vietnamese aviation authority's directive. Suspended flights to South Korea from March 5.

APPENDIX B: NATIONAL FLIGHT BANS DUE TO CORONAVIRUS OUTBREAK (AS OF MARCH 5, 00:00 GMT)

Jurisdiction	Status
Bahrain	Civil aviation authority suspended all flights from Dubai and Sharjah airports for 48 hours from February 24-26.
Czech Republic	Stated on March 2 that it would be stopping flights to South Korea and northern Italy cities for at least two weeks.
Kazakhstan	Suspended flights to Iran from March 1, and reduced the number of South Korea from March 1 and Azerbaijan flights from March 5.
Kenya	High Court ordered flights from China to be temporarily suspended for ten days according to ruling issued on February 28.
Kuwait	Halted all its flights to and from South Korea, Thailand, Italy and Iraq. Parliament called for flights to Egypt to be canceled.
Lebanon	Halted flights for non-residents from affected countries including China, Iran, Italy and South Korea, according to a notice on February 28.
Mongolia	Authorities issued a notice on February 24 halting all flights from South Korea and that it would block entry through its borders until March 2.
Russia	Transport authorities issued a notice on February 27 suspending some flights to and from Iran except Aeroflot and Mahan Air. All planes arriving from China will be sent to separate terminal in Moscow Sheremetyevo airport.
Sweden	Suspended IranAir from flying to and from Sweden on March 2.
Tajikistan	Civil aviation authorities issued a notice on February 24 suspending all flights to and from Iran until the situation stabilizes.
Tunisia	Suspended some flights to Italy.
Turkey	Turkish civil aviation authorities suspended commercial flights between Turkey and Iran until further notice.
UAE	All flights to China, except for Beijing, suspended from February 5 until further notice.
Ukraine	All direct flights to China suspended from February 4 until further notice.