



IMAGEGETTY IMAGES

CORONAVIRUS HAVING MAJOR EFFECT ON TECH INDUSTRY BEYOND SUPPLY CHAIN DELAYS

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The image contains three logos stacked vertically on a black background. At the top is the 'c|net' logo in white. Below it is the 'ZDNet' logo, which consists of a white square with a diagonal line and the text 'ZDNet' to its right. At the bottom is the 'TechRepublic' logo, featuring a stylized white wave icon followed by the text 'TechRepublic'.

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INTRODUCTION

The novel coronavirus illness dubbed 2019-nCoV, continues to rage across the globe, and as of February 2020, tens of thousands of people have been infected and hundreds of people have died.

On New Year's Eve, the illness was first reported to the World Health Organization. By January, it was linked to a family of viruses known as [coronaviruses](#). This is the same family of viruses responsible for SARS and Middle East respiratory syndrome, as well as some cases of the common cold.

As a result, a special WHO committee has declared a public health emergency of international concern, and it's had a serious impact on personal and business lives throughout the world.

TechRepublic, ZDNet, and CNET have been covering the news all along, and here is a compilation of the latest information and how it affects the tech world and what you need to know.

CORONAVIRUS OUTBREAK EXPLAINED: DEATH TOLL SURPASSES 630, CHINA STARTS CLINICAL DRUG TRIALS

BY JACKSON RYAN/CNET

China has been battling an outbreak of a pneumonia-like illness, first detected in the central city of Wuhan in December 2019, for over a month. The spate of illnesses is caused by a novel coronavirus, dubbed 2019-nCoV, which has now infected over 30,000 Chinese citizens and claimed more than 630 lives.

The illness was first reported to the World Health Organization on New Year's Eve and in the intervening month was [linked to a family of viruses known as "coronaviruses,"](#) the same family responsible for SARS and Middle East respiratory syndrome, as well as some cases of the common cold.

There are no approved treatments for coronaviruses, but on Feb. 6, China started enrolling a small number of patients in a [clinical trial of remdesivir](#), an experimental antiviral made by American pharmaceutical company Gilead that has not yet been approved for any use, but has shown promise in lab studies. "While there are no antiviral data for remdesivir that show activity against 2019-nCoV at this time, available data in other coronaviruses give us hope," [Gilead said in a statement.](#)

A [special WHO committee](#) declared a [public health emergency](#) of international concern on Jan. 30, citing "the potential for the virus to spread to countries with weaker health systems." Human-to-human transmission has been confirmed outside China, including in the US, leading authorities around the world to begin limiting travel and enforcing quarantines to guard against the spread.

On Feb. 4, two notable phone manufacturers announced they would be [altering their plans at Barcelona's Mobile World Congress which begins Feb. 24.](#) LG will withdraw from exhibiting and participating, while Chinese company ZTE has canned a press conference planned for the show.



IMAGE: ROBERT RODRIGUEZ/CNET

On Feb. 5, [Chinese state run media](#) reported a newborn had been diagnosed with 2019-nCoV just 30 hours after birth, opening up the potential for mother-child transmission. Viruses can be transmitted through the placenta, but [experts say it's too early to tell whether this is the case with the novel coronavirus](#), which is “unlikely” to be passed on in the womb.

On Feb. 7, Li Wenliang, the 34-year-old Chinese doctor who spoke out about the rising cases of pneumonia in an online chat room during the early days of the outbreak, died as a result of 2019-nCoV infection.

The situation is rapidly evolving. We've collated everything we know about the novel virus, what's next for researchers and some of the steps you can take to reduce your risk.

WHAT IS A CORONAVIRUS?

Coronaviruses belong to a family known as Coronaviridae, and under an electron microscope they look like spiked rings. They're named for these spikes, which form a halo or “crown” around their viral envelope.

Coronaviruses contain a single strand of RNA within the envelope and, as a virus, can't reproduce without getting inside living cells and hijacking their machinery. The spikes on the viral envelope help coronaviruses bind to cells, which gives them a way in, like blasting the door open with C4. Once inside, they turn the cell into a virus factory, using its molecular conveyor belt to produce more viruses, which are then shipped out of the cell. The virus progeny infect other cells and the cycle starts anew.

Typically, these types of viruses are found in animals ranging from livestock and household pets to wildlife such as bats. Some are responsible for disease, like the common cold. When they make the jump to humans, they can cause fever, respiratory illness and inflammation in the lungs. In immunocompromised individuals, such as the elderly or those with HIV-AIDS, such viruses can cause severe respiratory illness, resulting in pneumonia and even death.

Extremely pathogenic coronaviruses were behind SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome) outbreaks in the last two decades. These viruses were easily transmitted from human to human. SARS, which showed up in the early 2000s, infected more than 8,000 people and resulted in nearly 800 deaths. MERS, which appeared in the early 2010s, infected almost 2,500 people and led to more than 850 deaths.

WHERE DID THE VIRUS COME FROM?

The virus appears to have originated in Wuhan, a Chinese city about 650 miles south of Beijing that has a population of more than 11 million people. The Huanan Seafood Wholesale Market, which sells fish, as well

as a panoply of meat from other animals, including bats, snakes and pangolins, was implicated in the spread in early January.

Prestigious medical journal The Lancet published an extensive summary of the clinical features of patients infected with the disease stretching back to Dec. 1, 2019.

The very first patient identified had not been exposed to the market, suggesting the virus may have originated elsewhere and been transported to the market, where it was able to thrive.

Chinese authorities shut down the seafood market on Jan. 1.

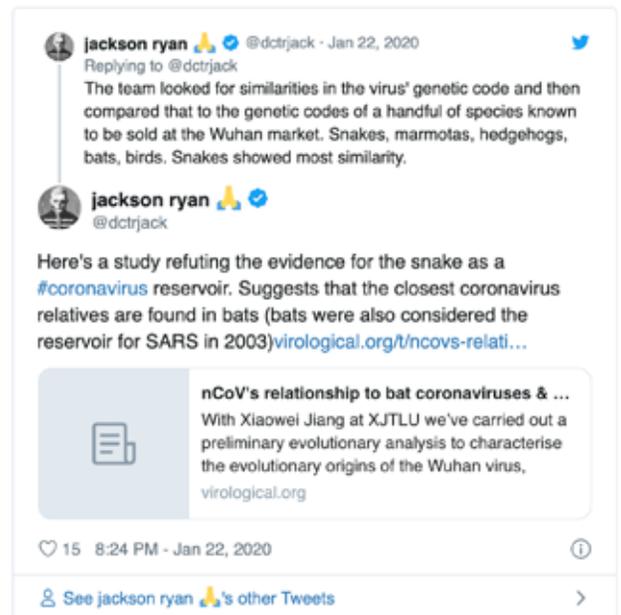
Markets have been implicated in the origin and spread of viral diseases in past epidemics, including SARS and MERS. A large majority of the people so far confirmed to have come down with the new coronavirus had been to the Huanan Seafood marketplace in recent weeks. The market seems like an integral piece of the puzzle, but researchers continue to test and research the original cause.

An early report, published in the Journal of Medical Virology on Jan. 22, suggested snakes were the most probable wildlife animal reservoir for 2019-nCoV, but the work was soundly refuted by two further studies just a day later, on Jan. 23.

“We haven’t seen evidence ample enough to suggest a snake reservoir for Wuhan coronavirus (2019-nCoV),” said Peter Daszak, president of nonprofit EcoHealth Alliance, which researches the links between human and animal health.

“This work is really interesting, but when we compare the genetic sequence of this new virus with all other known coronaviruses, all of its closest relatives have origins in mammals, specifically bats. Therefore, without further details on testing of animals in the markets, it looks like we are no closer to knowing this virus’ natural reservoir.”

Another group of Chinese scientists uploaded a paper to preprint website biorXiv, having studied the viral genetic code and compared it to the previous SARS coronavirus and other bat coronaviruses. They discovered the genetic similarities run deep: The virus shares 80% of its genes with the previous SARS virus and 96% of its genes with bat coronaviruses. Importantly, the study also demonstrated the virus can get into and hijack cells the same way SARS did.



All good science builds off previous discoveries -- and there is still more to learn about the basic biology of 2019-nCoV before we have a good grasp of exactly which animal vector is responsible for transmission -- but early indications are the virus is similar to those seen in bats. [A report by The New York Times on Jan. 28](#) suggested the Chinese horseshoe bat could be a culprit.

HOW MANY CONFIRMED CASES HAVE BEEN REPORTED?

Authorities have confirmed over 31,000 cases as of Feb. 6.

In the US, 12 cases have been confirmed: six in California, two in Illinois and one each in Washington state, Wisconsin, Massachusetts and Arizona. Canada has four confirmed cases.

A cruise ship, stationed off the Japanese port of Yokohama, has been put into quarantine after a passenger traveling onboard was found to be infected with 2019-nCoV. On Feb. 6, Japan [confirmed 61 people had tested positive for the novel coronavirus on the ship](#).

Over 26,000 people are suspected cases as of Feb. 6. [According to CGTN](#), a Chinese media service, the number of recovered patients has surged to more than 1,500 in China.

Here's the breakdown as it stands:

- **China:** 31,195 confirmed cases (Hong Kong: 24; Macau: 10)
- **Japan:** 45 confirmed cases
- **Singapore:** 28 confirmed cases
- **Thailand:** 25 confirmed cases
- **South Korea:** 23 confirmed cases
- **Taiwan:** 16 confirmed cases
- **Australia:** 15 confirmed cases
- **US:** 12 confirmed cases
- **Germany:** 12 confirmed cases
- **Malaysia:** 12 confirmed cases
- **Vietnam:** 10 confirmed cases
- **France:** 6 confirmed cases
- **United Arab Emirates:** 5 cases
- **Canada:** 5 confirmed cases
- **India:** 3 confirmed cases
- **Philippines:** 3 confirmed cases
- **UK:** 2 confirmed cases
- **Italy:** 2 confirmed cases
- **Russia:** 2 confirmed cases
- **Spain:** 1 confirmed case
- **Cambodia:** 1 confirmed case
- **Nepal:** 1 confirmed case
- **Sri Lanka:** 1 confirmed case
- **Tibet:** 1 confirmed case
- **Finland:** 1 confirmed case
- **Sweden:** 1 confirmed case
- **Belgium:** 1 confirmed case

You can [track the spread of the virus](#) with this handy online tool, which is collating data from a number of sources including the CDC, the WHO and Chinese health professionals. (Note: There may be differences in our reports and the tracking tool.)

HOW MANY DEATHS HAVE BEEN REPORTED?

As of Feb. 6, the death toll stands at 638.

One death has been recorded outside China. A man who traveled to Wuhan and returned to the Philippines in January passed away on Feb. 1. A second death outside mainland China was reported Tuesday, after a 39-year-old man died in Hong Kong.

On the morning of Feb. 7, Li Wenliang, a “whistleblowing” doctor who had posted concerns about a flu-like disease spreading in Wuhan to colleagues on social media, died, [the Guardian reports](#). He was investigated by police in early January for “spreading rumors” and later contracted 2019-nCoV from a patient he did not know was carrying the virus. The public mourned his death on Chinese social media network Weibo and “directed their ire at Chinese authorities,” [according to Quartz](#).

HOW DO WE KNOW IT’S A NEW CORONAVIRUS?

In short, science!

The Chinese Center for Disease Control and Prevention dispatched a team of scientists to Wuhan to gather information about the new disease and perform testing in patients, hoping to isolate the virus. Their work, [published in the New England Journal of Medicine on Jan. 24](#), examined samples from three patients. Using an electron microscope, which can resolve images of cells and their internal mechanics, and studying the genetic code, the team were able to visualize and genetically identify the novel coronavirus.



IMAGE: GETTY IMAGES

A pedestrian in the city of Wuhan, China. The virus appears to have originated in Wuhan’s Huanan Seafood Wholesale Market.

Understanding the genetic code helps researchers in two ways: It allows them to create tests that can identify the virus from patient samples, and it gives them potential insight into creating treatments or vaccines.

Additionally, the Peter Doherty Institute in Melbourne, Australia, was [able to identify and grow the virus in a lab from a patient sample](#). They announced their discovery on Jan. 28. This is seen as one of the major breakthroughs in developing a vaccine and provides laboratories with the capability to both assess and provide expert information to health authorities and detect the virus in patients suspected of harboring the disease.

HOW DOES THE CORONAVIRUS SPREAD?

This is one of the major questions researchers are still working hard to answer. The first infections were potentially the result of animal-to-human transmission, but confirmation that human-to-human transmission was obtained in late January.

The University of Minnesota's Center for Infectious Disease Research and Policy reported that [health workers in China had been infected with the virus](#) in late January. During the SARS epidemic, this was a notable turning point, as health workers moving between countries were able to help spread the disease.

“The major concern is hospital outbreaks, which were seen with SARS and MERS coronaviruses,” said C. Raina MacIntyre, a professor of global biosecurity at the University of New South Wales. “Meticulous triage and infection control is needed to prevent these outbreaks and protect health workers.”

There is some suggestion the virus can spread *before* symptoms appear, [according to a report](#) by the BBC citing Chinese officials. The incubation period -- when the virus is building up in the body -- can last between one to 14 days without a patient realizing they are infected. However, it must be stressed, experts still aren't sure how infectious this period is.

On Feb. 5, [Chinese state media](#) reported a newborn had been diagnosed with 2019-nCoV just 30 hours after birth, opening up the potential for mother-child transmission. Viruses can be transmitted through the placenta, but [experts say it's too early to tell whether this is the case with the novel coronavirus](#), which is “unlikely” to be passed on in the womb.

HOW IS THE WORLD COMBATING THE SPREAD?

In Wuhan, authorities rushed to [build a thousand-bed hospital](#) to treat coronavirus patients as the province struggles with hospital bed shortages. [It began taking patients on Feb. 4.](#)

China [shut down Wuhan](#) to reduce the spread of the virus, canceling transportation leaving the city starting at 10 a.m. Jan. 23. The travel restrictions were [extended to four other cities](#) (Huanggang, Ezhou, Chibi and Zhijiang) later that day, and constraints were announced in [eight more cities](#) on Jan. 24 -- impacting more than 35 million people.

The restrictions were enforced during a busy travel period for China, when citizens typically travel for the Lunar New Year. Major public events Chinese capital Beijing were canceled, and both Beijing's [Forbidden City](#) and [Shanghai's Disneyland](#) closed down from Jan. 25. All of the restrictions and closures will last indefinitely.

[The scale of the global efforts to contain the disease is immense.](#) Hong Kong closed many public facilities on Jan. 28 and has prevented traveling between mainland China. The US announced sweeping border control measures at 20 ports of entry and has been considering cancelling flights to and from the outbreak epicenter in Wuhan. Esports tournaments have been postponed, Shanghai and Hong Kong Disneyland has closed, Olympic women's soccer tournaments have been moved entirely, and McDonald's has shuttered thousands of locations across China where the virus is spreading.

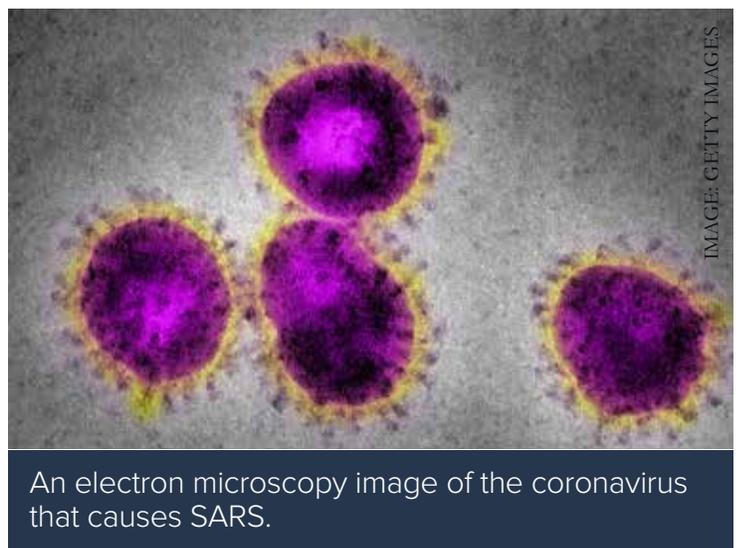
British Airways on Jan. 29 suspended all flights to and from mainland China "for the next few days," a spokesperson confirmed via email. [American Airlines](#) and [Delta](#) are also suspending service to mainland China, though Delta will continue to operate flights until Feb. 5 for customers looking to exit China. The national airline in Australia, Qantas, [announced the suspension of flights from Sydney to Beijing and Sydney to Shanghai from Feb. 9.](#) New Zealand's carrier, Air New Zealand, suspended daily flights to Shanghai on Feb. 1.

On Jan. 31, US Secretary of Health and Human Services Alex Azar [declared a public health emergency](#) citing the nation's intention to protect and respond to the outbreak, while noting "the risk to Americans remains low." Australia and Japan followed suit. On Feb. 4, Britain's Foreign Office and the French Foreign Ministry warned citizens to evacuate China to lower their risk of infection.

HOW INFECTIOUS IS CORONAVIRUS?

A widely shared [Twitter thread by Eric Feigl-Ding](#), a Harvard University epidemiologist, suggests the new coronavirus is "thermonuclear pandemic level bad" based on a metric known as the "r nought" (R_0) value. This metric helps determine the basic reproduction number of an infectious disease. In the simplest terms, the value relates to how many people can be infected by one person carrying the disease. [It was widely criticized](#) before being deleted.

Infectious diseases such as measles have an R_0 of 12 to 18, which is remarkably high. The SARS epidemic of 2002-2003 had an R_0 of around 3. A handful of studies modeling the 2019-nCoV outbreak have given a similar value with a range between 1.4 and



An electron microscopy image of the coronavirus that causes SARS.

3.8. However, there is large variation between studies and models attempting to predict the R0 of novel coronavirus due to the constantly changing number of cases.

In the early stages of understanding the disease and its spread, it should be stressed these studies are informative, but they aren't definitive. They give an indication of the potential for the disease to move from person-to-person, but we still don't have enough information about how the new virus spreads.

“Some experts are saying it is the most infectious virus ever seen -- that is not correct,” MacIntyre said. “If it was highly infectious (more infectious than influenza as suggested by some) we should have seen hundreds, if not thousands of cases outside of China by now, given Wuhan is a major travel hub.”

China has suggested the virus can spread *before* symptoms present. [Writing in The Conversation on Jan. 28](#), MacIntyre noted there was no evidence for these claims so far but does suggest children and young people could be infectious without displaying any symptoms. This also makes airport screening less impactful, because harboring the disease but showing no signs could allow it insidiously spread further.

SHOULD YOU BE WORRIED?

As the virus has continued to spread, it's easy to get caught up in the fear and alarmism rampantly escalating through social media. [There is misinformation and disinformation swirling about the effects of the disease, where it's spreading and how](#). Experts still caution the virus appears to be mild, especially in comparison to infections by other viruses, like influenza or measles.

CNET has put together a fact check about some of the rumors and myths that have been spreading.

WHO DECLARES A PUBLIC HEALTH EMERGENCY

On Jan. 30, the World Health Organization declared a public health emergency of international concern over the coronavirus outbreak. Tedros Adhanom Ghebreyesus, the director-general of the WHO, said the organization is working with national and international public health partners to get the outbreak under control.



The WHO also issued recommendations to prevent the spread of the virus and ensure a “measured and evidence-based response.”

In the fall, an [emergency committee met regarding the Ebola virus epidemic](#) in the Democratic Republic of the Congo. The meeting outlined key strategies and commitments to strengthen and protect against the spread of the disease.

On Thursday, search giant Google announced they would be teaming with WHO and help disseminate information via their results page.



WHAT ARE THE SYMPTOMS?

The new coronavirus causes symptoms similar to those of previously identified disease-causing coronaviruses. In currently identified patients, there seems to be a spectrum of illness: A large number experience mild pneumonia-like symptoms, while others have a much more severe response.

On Jan. 24, [prestigious medical journal The Lancet](#) published an extensive analysis of the clinical features of the disease.

According to the report, patients present with:

- Fever, elevated body temperature.
- Dry cough.
- Fatigue or muscle pain.
- Breathing difficulties.

Less common symptoms of coronavirus include:

- Coughing up mucus or blood.
- Headaches.
- Diarrhea.

As the disease progresses, patients also come down with pneumonia, which inflames the lungs and causes them to fill with fluid. This can be detected by an X-ray and was present in all 41 cases studied.

IS THERE A TREATMENT FOR CORONAVIRUS?

Coronaviruses are notoriously hardy organisms. They're effective at hiding from the human immune system, and we haven't developed any reliable treatments or vaccines that can eradicate them. In most cases, health officials attempt to deal with the symptoms.

"There is no recognized therapeutic against coronaviruses," Mike Ryan, executive director of the WHO Health Emergencies Programme, said during the Emergency Committee press conference on Jan. 29. "The primary objective in an outbreak related to a coronavirus is to give adequate support of care to patients, particularly in terms of respiratory support and multi-organ support."

That doesn't mean vaccines are an impossibility, however. Chinese scientists were able to sequence the virus' genetic code incredibly quickly, giving scientists a chance to study it and look for ways to combat the disease. According to CNN, researchers at the US National Institutes of Health are already [working on a vaccine](#), though it could be a year or more away from release.

Notably, SARS, which infected around 8,000 people and killed around 800, seemed to run its course and then mostly disappear. It wasn't a vaccine that turned the tide on the disease but rather effective communication between nations and a range of tools that helped track the disease and its spread.

"We learnt that epidemics can be controlled without drugs or vaccines, using enhanced surveillance, case isolation, contact tracking, PPE and infection control measures," MacIntyre said.

A handful of organizations and research institutes have started work on vaccines, according to Global Times.

In addition, China is running clinical trials on the experimental antiviral drug remdesivir, which was originally developed to treat ebola. Remdesivir was also given to a US patient in Washington state whose symptoms worsened. In that case, doctors made a "compassionate use" request to the Food and Drug Administration. Those [allow people to try experimental drugs](#) outside of clinical trials, usually in emergency situations.

China is also running a small clinical trial of Kaletra, an anti-HIV drug, according to The Guardian.

Developing new drugs requires time and resources, so "while you're waiting for the new miracle drug, it's worthwhile looking



for existing drugs that could be repurposed” to treat new viruses, Stephen Morse, a professor at Columbia University’s Mailman School of Public Health, told Live Science.

HOW TO REDUCE YOUR RISK OF CORONAVIRUS

With confirmed cases now seen across the globe, it’s possible that 2019-nCoV may spread much further afield than China. The WHO recommends a range of measures to protect yourself from contracting the disease, based on good hand hygiene and good respiratory hygiene -- in much the same way you’d [reduce the risk of contracting the flu](#). The novel coronavirus does spread and infect humans slightly differently to the flu, but because it predominantly affects the respiratory tract, [the protection measures are quite similar](#).

Meanwhile, the US State Department on Jan. 30 issued a [travel advisory](#) with a blunt message: “Do not travel to China.” An earlier [warning from the CDC](#) advised people to “avoid nonessential travel.”

A Twitter thread, developed by the WHO, is at right.

You may also be considering buying a face mask to protect yourself from contracting the virus. You’re not alone -- stocks of face masks have been selling out across the world, with Amazon and Walmart.com experiencing shortages. Reporting from Sydney this week, I found lines at the pharmacy extending down the street.

The risk of contracting the virus outside of China remains low, but if you’re considering buying a mask, you’ll want to know exactly which face mask you should be looking for. Disposable masks can protect any large droplets from entering the mouth or nasal passage but a respirator mask is far more effective. [CNET’s Wellness team has put together a comprehensive guide to which masks you should buy](#).



3D MAP SHOWS HOW THE CORONAVIRUS IS SPREADING WORLDWIDE

BY VERONICA COMBS/TECHREPUBLIC

Turquoise arcs travel around the globe in a 3D map that illustrates the spread of the 2019-nCoV (commonly referred to as coronavirus) strain around the world.

A United Nations aviation agency built the [3DFX Dispersion map](#), which shows the movement of the virus around the world via air traffic routes from Wuhan, China.

The geographic information system (GIS) map displays multiple layers of data, including deaths, confirmed cases, and cases by country.

(A [geographic information system](#) gathers, manages, and analyzes many types of data and organizes it into visualizations using maps and 3D scenes.)

The 3D map has two animations. The play button in the lower gray bar makes the globe rotate. The other continuous animation links the first wave cases of the virus in countries around the world back to the Wuhan province. Turquoise arcs start in Central America, Australia, and Asia and move around the globe back to Wuhan. These arcs illustrate the first wave of cases inside China and originating from China. Another layer of the map shows the second wave of cases.

From the layer list, users also can see affected regions following the second wave and airport information. The legend button in the upper gray menu bar explains the symbols on the map. The layer list from the menu shows the data sets that can be displayed on the map.

The data for the confirmed cases, deaths, and recovered patients are from WHO, CDC, and NHC.

The map was built by the [ICAO GIS for Organization](#), a group which manages a collection of GIS maps for the International Civil Aviation Organization (ICAO), a United Nations agency that sets standards and regulations necessary for aviation safety, security, efficiency, capacity, and environmental protection. The ICAO has 193 member states, including the United States and the United Kingdom.



An aviation agency is using GIS software to map the transmission of the coronavirus around the world.

ICAO has a branch that focuses on public health, the [Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation \(CAPSCA\)](#). CAPSCA advises members on how to address the coronavirus outbreak.

The [risk of contracting the coronavirus is low in the US](#). According to the latest report from the WHO, the majority of cases are due to exposure in Wuhan or elsewhere in China with few cases “locally acquired” in other countries. The flu season has been a much bigger problem this year [with 19 million people catching the illness and 10,000 dying from it](#).

IMPACT ON BUSINESS

However, that doesn't mean that companies in the US and throughout the world aren't responding to the virus. Tech firms [have started to take action in response to the outbreak](#). Apple and Google have begun closing offices and stores and limiting travel to China.

Many airlines are either limiting or canceling China flights including American, Air Canada, British Airways, Cathay Pacific, Delta, United Airlines, Lufthansa, Austrian, Swiss, and Finnair. United Airlines has stopped flights between its hubs and Beijing, Chengdu, and Shanghai from Feb. 6 through March 28.

The Centers for Disease Control are screening passengers from Wuhan at 20 airports around the country. This includes answering questions about symptoms as well as travel and contacts while in Wuhan. Passengers will also have their temperatures taken.

Here are the 20 airports where travelers will undergo additional screening:

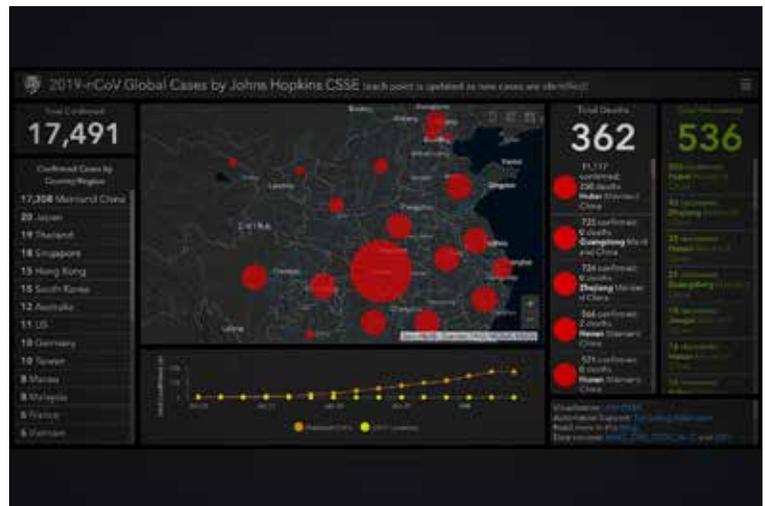
1. Los Angeles International
2. John F. Kennedy International
3. O'Hare International
4. San Francisco International
5. Atlanta's Hartsfield-Jackson
6. Anchorage Ted Stevens International
7. Boston Logan International
8. Dallas-Fort Worth International
9. Detroit Metropolitan
10. El Paso International
11. Honolulu International
12. Houston George Bush International
13. Miami International
14. Minneapolis-St. Paul International
15. Newark Liberty International
16. Philadelphia International
17. Puerto Rico's San Juan International
18. San Diego International
19. Seattle-Tacoma International
20. Washington Dulles International

HOW TO TRACK THE CORONAVIRUS: DASHBOARD DELIVERS REAL-TIME VIEW OF THE DEADLY VIRUS

BY NATALIE GAGLIORDI/ZDNET

The Center for Systems Science and Engineering has launched an online dashboard that is tracking the spread of the deadly coronavirus as it makes its way across China and beyond.

Coronavirus is believed to have originated in Wuhan City, China, and so far has killed more than 600 people and sickened over 30,000 in mainland China alone. Despite efforts by the Chinese government to quarantine the virus, cases have also been confirmed across Asia, Australia, Europe, and North America.



CORONAVIRUS ONLINE DASHBOARD

Track the coronavirus on a real-time map

The [live dashboard](#) pulls data from the World Health Organization (WHO) -- as well as the centers for disease control in the US, China and Europe -- to show all confirmed and suspected cases of coronavirus, along with recovered patients and deaths. The data is visualized through a real-time graphic information system (GIS) powered by Esri.

As of Friday, there have been 12 confirmed coronavirus cases in the United States. In addition to those patients, US health officials are currently monitoring more than 100 people across the country for the virus. Those infected with coronavirus are exhibiting pneumonia-like symptoms, including fever, cough, and shortness of breath.

Additional resources for tracking the virus include [this page from the US Centers for Disease Control and Prevention](#) and another from the WHO. These websites list up to date news on the spread of the virus as well as situation reports and maps of infected areas. Researchers from the University of Oxford, Harvard Medical School, Boston Children's Hospital and Northeastern University have also launched a [virus tracking website](#) with real-time updates.

Coronavirus was first reported to the WHO on Dec. 31, with Chinese investigators linking the disease to the coronavirus family of viruses, which also includes the deadly SARS and the Middle East respiratory syndrome (MERS).

Dr. Nancy Messonnier, the director of the CDC's National Center for Immunization and Respiratory Diseases, has maintained the position that the public risk from coronavirus in the US right now is still considered low. Messonnier said the strategy behind the US response to coronavirus is to slow it down, not stop it.

"It's important to know that this strategy is not meant to catch every single traveler returning from China with novel coronavirus," said Messonnier, at a press briefing Monday. "Given the nature of this virus and how it's spreading, that would be impossible. But working together, we can catch the majority of them."

Nonetheless, financial markets are on edge amid fears of a global pandemic. The DOW Industrial dropped as much as 549 points last Monday before rebounding and crashing again by the end of the week. Chinese stocks also plunged Monday as the coronavirus outbreak worsened.

Individual technology companies are also reporting uncertainty surrounding the Chinese market and the impact of the coronavirus. Apple noted in its first-quarter [financial results](#) last week that the coronavirus outbreak in China is affecting operations.

"We do have some suppliers in the Wuhan area," Apple CEO Tim Cook said on a conference call with analysts. "All of these suppliers, there are alternate sources, and we're obviously working on mitigation plans to make up any expected production loss. With respect to supply sources that are outside the Wuhan area, the impact is less clear at this time."

COMBATING THE CORONAVIRUS WITH TWITTER, DATA MINING, AND MACHINE LEARNING

BY VERONICA COMBS/TECHREPUBLIC

The [coronavirus illness](#) (nCoV) is now an international public health emergency, bigger than the SARS outbreak of 2003. Unlike SARS, this time around scientists have better genome sequencing, machine learning, and predictive analysis tools to understand and monitor the outbreak.

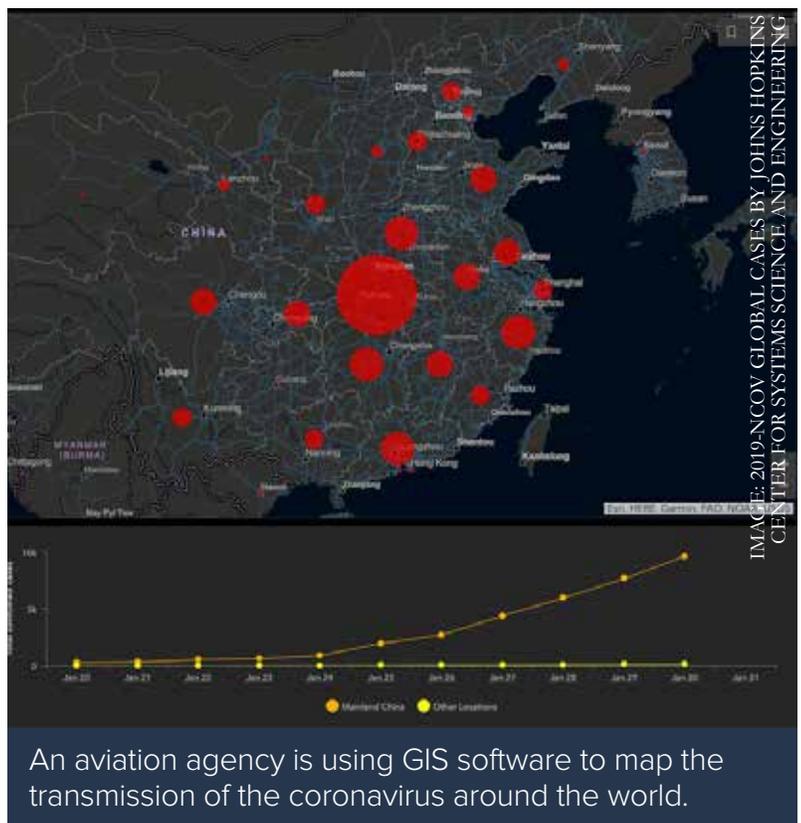
During the SARS outbreak, it took five months for scientists to sequence the virus's genome. However, the [first 2019-nCoV case](#) was reported in December, and [scientists had the genome sequenced by January 10](#), only a month later.

Researchers have been using [mapping tools to track the spread of disease](#) for several years. Ten European countries started [Influenza Net](#) in 2003 to track flu symptoms as reported by individuals, and the American version, [Flu Near You](#), started a similar service in 2011.

Lauren Gardner, a civil engineering professor at Johns Hopkins and the co-director of the Center for Systems Science and Engineering, [led the effort to launch a real-time map](#) of the spread of the 2019-nCoV. The [site displays statistics about deaths and confirmed cases of coronavirus on a worldwide map](#).

Este Geraghty, MD, MS, MPH, GISP, and chief medical officer and health solutions director at Esri, said that since the SARS outbreak in 2003 there has been a revolution in applied geography through web-based tools.

“Now as we deploy these tools to protect human lives, we can ingest real-time data and display results in interactive dashboards like the coronavirus dashboard built by Johns Hopkins University using ArcGIS,” she said.



With this outbreak, scientists have another source of data that did not exist in 2003: Twitter and Facebook. In 2014, Chicago's Department of Innovation and Technology [built an algorithm that used social media mining and illness prediction technologies](#) to target restaurants inspections. It worked: The algorithm found violations about 7.5 days before the normal inspection routine did.

THE SOCIAL MEDIA ADVANTAGE

Theresa Do, MPH, leader of the Federal Healthcare Advisory and Solutions team at SAS, said that social media can be used as an early indicator that something is going on.

“When you're thinking on a world stage, a lot of times they don't have a lot of these technological advances, but what they do have is cell phones, so they may be tweeting out ‘My whole village is sick, something's going on here,’ she said.

Do said an analysis of social media posts can be combined with other data sources to predict who is most likely to develop illnesses like the coronavirus illness.

“You can use social media as a source but then validate it against other data sources,” she said. “It's not always generalizable (is generalizable a word?), but it can be a sentinel source.”

Do said predictive analytics has made significant advances since 2003, including refining the ability to combine multiple data sources. For example, algorithms can look at names on plane tickets and compare that information with data from other sources to predict who has been traveling to certain areas.

“Algorithms can allow you to say ‘with some likelihood’ it's likely to be the same person,” she said.

FILLING GAPS IN THE DATA

The current challenge is identifying gaps in the data. She said that researchers have to balance between the need for real-time data and privacy concerns.

“If you think about the different smartwatches that people wear, you can tell if people are active or not and use that as part of your model, but people aren't always willing to share that because then you can track where someone is at all times,” she said.

Do said that the coronavirus outbreak resembles the SARS outbreak, but that governments are sharing data more openly this time.

“We may be getting a lot more positives than they're revealing and that plays a role in how we build the models,” she said. “A country doesn't want to be looked at as having the most cases but that is how you save lives.”

HACKERS USING CORONAVIRUS SCARE TO SPREAD EMOTET MALWARE IN JAPAN

BY JONATHAN GREIG/TECHREPUBLIC CONTRIBUTOR

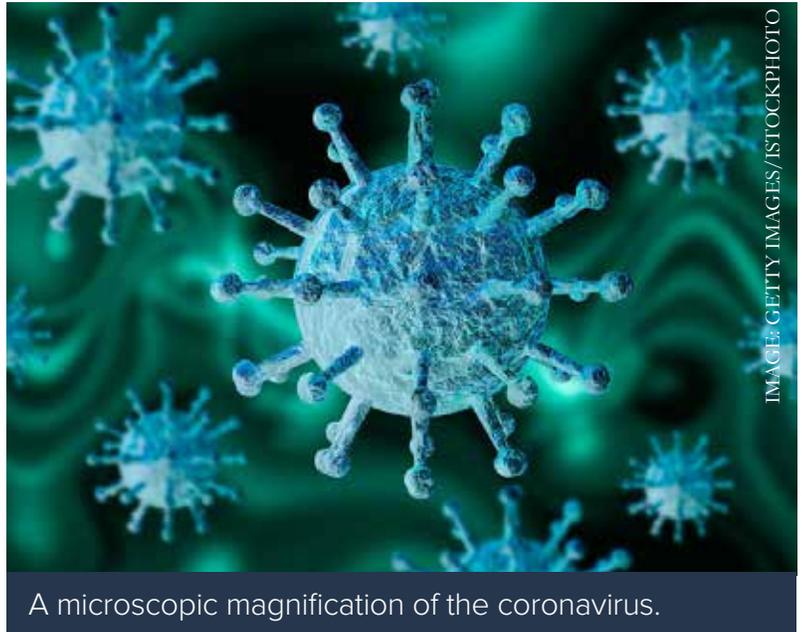
Researchers with IBM X-Force and Kaspersky have discovered that cybercriminals are spreading a popular malware strain through malicious emails and links related to the coronavirus outbreak that started in Wuhan, China in January.

Hackers are using global fears about the spread of the virus to target people in Japan with the Emotet trojan, a popular strain of malware that has been devastatingly effective at attacking governments and financial institutions. The email discovered by IBM found that cybercriminals were sending emails under the guise of being part of a disability welfare service provider in Japan.

The emails falsely claims that there are reports of coronavirus patients in the Gifu, Tottori and Osaka prefectures in Japan, urging victims to read an attached Microsoft Word document which contains the Emotet trojan. The messages are particularly dangerous because they were made to look like official government emails, equipped with legitimate addresses, phone numbers and emails.

“The practice of leveraging worldwide events by basing malicious emails on current important topics has become common among cyber criminals. Such a strategy is able to trick more victims into clicking malicious links or opening malicious files, ultimately increasing the effectiveness of a malware campaign,” IBM researchers wrote in a report on Wednesday.

“What makes these attacks rather special, is the fact that they deliver the Emotet trojan, which has shown increased activity recently. It achieves this by urging its victims into opening an attached Word document, described as a supposed notice regarding infection prevention measures,” the report added.



A microscopic magnification of the coronavirus.

PREYING ON PEOPLE'S FEAR OF THE CORONAVIRUS

Threat researchers with Kaspersky identified other attempts to spread Emotet using the coronavirus scare as a way to get people to open emails or files and share them. Cybercriminals are attaching .pdf, .mp4, and .docx files to emails that purport to have information on how people can protect themselves from the virus, updates on its spread and even virus detection procedures.

“The coronavirus, which is being widely discussed as a major news story, has already been used as bait by cybercriminals,” said Anton Ivanov, Kaspersky malware analyst. “So far we have seen only 10 unique files, but as this sort of activity often happens with popular media topics, we expect that this tendency may grow. As people continue to be worried for their health, we may see more and more malware hidden inside fake documents about the coronavirus being spread.”

IBM researchers note that this kind of attack will be significantly more successful because of the very real fears many people, especially those in Asia, have about the spread of the coronavirus, which was declared a public health emergency on Thursday. Previous attempts to spread the Emotet malware in Japan focused primarily on the kind of corporate-style payment notifications and invoices that worked well in Europe.

ADDITIONAL ATTEMPTS TO USE THE CORONAVIRUS TO SPREAD MALWARE

A Japanese researcher on Twitter [has been posting updates about other attempts](#) by hackers to use the coronavirus to spread malware. Irfan Asrar, head of Cyber Threat Intelligence and Operations at Blue Hexagon, said the latest campaign appears to have hijacked the messaging from an official alert about coronavirus in Osaka and will likely target healthcare organizations as well as other corporations.

Dozens of security researchers said hackers using Emotet routinely use global news events to spread the malware, which can extract valuable data from people or upload malicious programs to your device.

Kowsik Guruswamy, CTO of Menlo Security, said this new campaign shows why existing security technologies may never be able to eliminate phishing attacks with malicious attachments. Attackers are often leveraging a life or death situation to trick people into downloading malware and no AI or threat intelligence-based blacklist can ever stop this kind of attack.

“We should expect to see more spikes in malware campaigns that coincide with natural disasters or other critical events that grab national or International headlines. Attackers have picked up on the fact that people want to stay informed during a crisis. Especially when it’s a matter of life and death, people will let their guard

down a little and not always be as careful. So it's a natural angle to adapt to get people's attention and prompt them to take some action that they may not normally do when there isn't a crisis," Guruswamy said.

BUSINESSES NEED TO RETHINK SECURITY MEASURES

Companies, he added, need to rethink their security, train employees about potential attacks, update their policies or filters when a campaign is identified and think about new technologies or methods that do not rely on rear view security.

Javvad Malik, security awareness advocate with KnowBe4, said attackers tried to spread Emotet malware this week by exploiting the unfortunate helicopter crash which claimed the lives of Kobe Bryant, his daughter and several others.

To protect against these kinds of attacks, enterprises need to stop Emotet from moving laterally across the network, according to Peter Smith, CEO of Edgewise Networks.

"If Emotet is still a threat six years after discovery, clearly something in malware detection and perimeter defenses aren't doing the job. The best defense is to microsegment the network to enable zero trust so that only approved, verified communications are allowed, which would prevent Emotet from doing so much damage," Smith noted.

THE SUPER BOWL AND GRETA THUNBERG ALSO USED AS MALWARE

Cybercriminals even use positive events, like the Super Bowl or [Greta Thunberg's climate change movement](#), to [spread malware](#) to unsuspecting victims. Senior Director Threat Research and Detection at Proofpoint Sherrod DeGrippo said cybercriminals know much of the world is interested in any information they can get on the coronavirus and are using the urgency of the situation to lure people into traps.

"Emotet is one of the world's most disruptive threats—and they use extremely topical lures, like the coronavirus and Greta Thunberg, in hundreds of thousands to millions of socially engineered emails daily," DeGrippo said.

"Emotet's infrastructure is also very test and metric-driven and is built to scale depending on what's working. That said, their campaigns tend to be broad and more targeted to particular geographies and languages rather than verticals. It's important security teams continue to secure their email channel and educate users regarding the increased risks associated with email attachments risks as Emotet is capable of downloading a range of additional malware, spreading across networks and using infected devices to launch further attacks."

CORONAVIRUS AFFECTING TECH FIRMS AS OUTBREAK SPREADS

BY: ANDREW MORSE/CNET

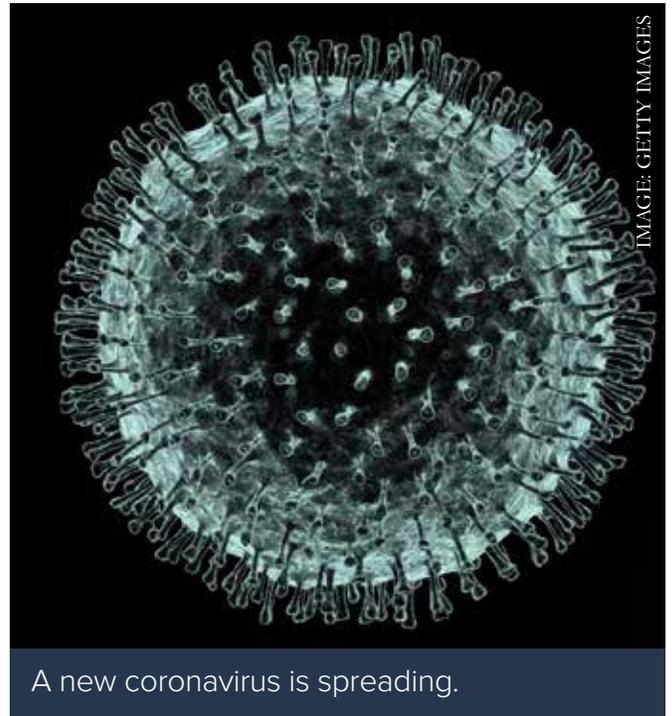
The [coronavirus](#) is taking a toll on the global technology industry. [Apple](#) and [Google](#), among others, have begun closing stores and offices, limiting business [travel](#) to China and bracing for supply chain disruption as health officials around the world seek to contain the disease. The GSMA, the group that organizes [Mobile World Congress](#), said it would have additional [medical personnel on-site](#) when the conference opens in Barcelona on Feb. 24. Several companies, South Korea's [LG](#), Sweden's [Ericsson](#) and US-based [Nvidia](#), have pulled out of the annual gathering.

In January, the World Health Organization on Thursday declared the 2019-nCoV strain of the virus a public health emergency of international concern, citing worries about its spread, particularly to countries “[with weaker health systems](#).” The death toll has risen to more than 630 and the number of infections is approaching 32,000.

The virus was discovered in the Wuhan region of China late last year, and causes symptoms that are similar to pneumonia. It was first reported to the WHO on Dec. 31, with [Chinese scientists linking the disease to a family of viruses](#) that includes SARS and MERS (Middle East respiratory syndrome).

[Infections have been found in more than 20 countries](#). Eleven cases have been [identified in the US](#), where the disease has spread person to person in at least one case. It's also been found in Australia, Europe, the Middle East and other parts of Asia.

Airlines have begun curtailing flights to China. United Airlines has [suspended operations](#) between its hubs and Beijing, Chengdu and Shanghai beginning Feb. 6 through March 28. The airline says it will operate “select flights” to ensure US-based employees and customers can return home, and It will also fly one daily flight between San Francisco and Hong Kong. Other airlines either canceling China flights or extending travel waivers include American, Air Canada, British Airways, Cathay Pacific, Delta, Lufthansa, Austrian, Swiss and Finnair.



A new coronavirus is spreading.

The Allied Pilots Association filed a lawsuit seeking a [temporary restraining order](#) to suspend American's US-China flights citing the "serious, and in many ways still unknown, health threats posed by the coronavirus." American Airlines acknowledged the lawsuit and said it's in touch with health authorities to "make sure we are taking all necessary precautions for our customers and team members." A US flight attendants union is also urging flights to China be canceled until the outbreak is contained.

Many tech companies are monitoring the situation closely and have curtailed nonessential travel. [Lenovo](#), the Chinese laptop maker, said it was avoiding large face-to-face meetings and allowing more people to work from home until more is known about the outbreak. [HP](#) has implemented some travel restrictions for employees going to and from China. Mozilla, which makes the Firefox browser, is making masks and hand sanitizer available. Facebook and Twitter are suspending nonessential travel to China, while Nintendo reportedly said production of its popular Switch handset in China was "[seeing some impact from the coronavirus](#)." Five factories that make LCD and OLED panels are expected to see slowdowns in production, according to IHS Markit, a research firm.

Those companies aren't alone. Here's how the virus is impacting some of the biggest names in tech.

APPLE

The [iPhone](#) maker has temporarily shuttered [all of its stores in mainland China](#), one of its biggest and most important markets. Apple is also closing its corporate offices and contact centers in China through Feb. 9.

"Our thoughts are with the people most immediately affected by the Coronavirus and with those working around the clock to study and contain it," Apple said in a statement Friday. "Out of an abundance of caution and based on the latest advice from leading health experts, we're closing all our corporate offices, stores and contact centers in mainland China through February 9."

The company said its online store in China remains open, and it will "closely monitor the situation" in order to reopen stores as soon as possible.

During its [earnings](#) call on Jan. 28, CEO Tim Cook said "a number" of Apple's retail partners have closed their locations as well.

Apple has suppliers in the Wuhan area but also has alternative sources for the components they provide. The company is "working on mitigation plans to make up any expected production loss," Cook said. What's less clear is how the coronavirus will impact suppliers in other parts of China, he said.

The Chinese government extended the Lunar New Year holiday break from the end of January to Feb. 10, which will delay the startup of Apple supplier factories, Cook said.

Apple then [extended the closures of its Chinese stores](#) by another week, as reported by Bloomberg Feb. 7. Multiple stores are now listed on Apple's website as being closed through Feb. 14, including stores located in Beijing, Shanghai, Shandong, Chengdu, Guangzhou, Sichuan, Guangdong, Henan and Tianjin. Of Apple's 42 stores on the Chinese mainland, only three stores are now listed as opening earlier than this: one in [Chongqing, which will reopen Feb. 13](#); one in Fujian, which will reopen Feb. 11; and one in [Guangzhou, which will still reopen Feb. 10](#).

All [six Apple stores in Hong Kong remain open](#), and Apple is still looking to reopen its corporate offices next week through "consultation with public health experts and government authorities," Bloomberg quoted the tech giant as saying. Apple didn't immediately respond to a request for comment.

GOOGLE

The search giant said Wednesday that it's [temporarily closing all of its offices](#) in mainland China, Hong Kong and Taiwan due to the health threat. The tech giant has also placed restrictions on business travel to China and Hong Kong.

[Google](#) employees in China and those with immediate family members returning from China have been told to work from home for at least 14 days. Google's China business focuses mainly on sales and engineering for its advertising business.

LG

The South Korean electronics company said it would "withdraw from exhibiting and participating" at [Mobile World Congress 2020](#), citing concerns for the safety of its employees and the general public because of the coronavirus. The company said it wanted to prevent "needlessly exposing hundreds of LG employees to international travel."

LG's decision marks a high-profile cancelation for the annual show, which companies use to unveil their upcoming product lines. LG said will hold other events in the near future to promote its products.

ZTE

Chinese company ZTE canceled its press conference at MWC, but says it other scheduled activities would go ahead as planned. ZTE said it was taking other precautions because of the coronavirus outbreak, including quarantining all staff from mainland China for two weeks ahead of traveling to the Barcelona and making sure all senior executives involved in high-level meetings spent those two weeks of isolation in Europe.

AMAZON

The online retail giant says it has restricted business travel to China unless there's a "business critical reason." The company has also recommended that employees who have returned or will be returning from an affected Chinese province work from home for 14 days. If they experience any symptoms, they've been asked to get a medical consultation before returning to the office.

"We place tremendous value and focus on the well-being and safety of our employees," a spokesperson said in a statement. "Out of an abundance of caution, we are restricting business travel to and from China until further notice and encouraging our employees to follow the health and safety guidelines provided by international health agencies such as the CDC (US Centers for Disease Control and Prevention) and WHO."

MICROSOFT

The software giant has advised China-based employees to work from home and cancel all nonessential business travel until Feb. 9. It's also advised employees to avoid nonessential travel to China based on the CDC's recommendation. Microsoft has said it will make a 1 million yuan (\$144,000) donation to the Hubei Red Cross Foundation to help with relief efforts in Wuhan and surrounding areas. The company estimates the risk to employees is low, and no employee has been affected at this time.

Microsoft maintains a global health response team that's mobilized to protect employees based on an evaluation of recommendations by global health authorities, such as the WHO and the CDC.

TESLA

The electric car maker is closing its new plant in Shanghai for up to a week and a half after the Chinese government told private companies to temporarily cease operations. CFO Zack Kirkhorn told investors about the mandatory closure during the company's [fourth-quarter earnings call](#). The shutdown may "slightly" affect first quarter profits, he said.

The closure comes shortly after Tesla had begun ramping up production at the facility. All private facilities will remain closed until Feb. 9, though utility firms and health care industries remain open.

AIRBNB

The home rental service said it would offer guests and hosts affected by coronavirus the opportunity to cancel reservations without penalty. The policy applies to hosts or guests in Hubei Province, where Wuhan is located, with reservations between Jan. 21 and Feb. 8, as well as any guests already staying in Hubei.

UBER

The ride-hailing giant has temporarily suspended roughly 240 user accounts in Mexico to [prevent the spread of coronavirus](#). In a statement on [Twitter](#), Uber said it suspended the accounts in Mexico because those users had come in contact with two drivers possibly exposed to the virus. The company acted after receiving information from the Mexico City health department about a passenger who may have been a carrier of the virus. The affected accounts include two drivers who transported the individual, along with about 240 passengers who came in contact with those drivers.

ERICSSON

[Swedish networking giant Ericsson is the latest to pull out of MWC 2020](#), announcing the decision on Feb. 7.

“The health and safety of our employees, customers and other stakeholders are our highest priority,” said Börje Ekholm, president and CEO of Ericsson, [in a statement](#). “We were looking forward to showcasing our latest innovations at MWC in Barcelona. It is very unfortunate, but we strongly believe the most responsible business decision is to withdraw our participation from this year’s event.”

Instead, Ericsson says it will unveil its new products and services at local “Ericsson Unboxed” events.

FOXCONN

[Foxconn has reportedly told its employees not to come back to work at its offices in Shenzhen](#), China, after the Lunar New Year break finishes on Monday, Feb. 10. While [Foxconn last month said the coronavirus wouldn’t stop it from hitting its production targets](#), the iPhone maker is now working “to safeguard everyone’s health and safety and comply with government virus prevention measures,” Bloomberg reported Feb. 7 citing an internal memo.

“We urge you not to return to Shenzhen,” Foxconn reportedly said in a text message to employees. Foxconn didn’t immediately respond to a request for comment.

NVIDIA

US-based graphics-chip maker [Nvidia announced on Feb. 7 that it wouldn’t be attending Mobile World Congress](#) later this month.

“Given public health risks around the coronavirus, ensuring the safety of our colleagues, partners and customers is our highest concern,” the company said in a blog post.

“We’ve been looking forward to sharing our work in AI, 5G and vRAN with the industry,” the company said in the post. “We regret not attending, but believe this is the right decision.”

LG WITHDRAWS FROM ISE DUE TO CORONAVIRUS CONCERNS

BY: AIMEE CHANTHADAVONG/ZDNET

LG Electronics has announced that due to the coronavirus outbreak it has decided to withdraw from the Integrated Systems Europe (ISE) 2020 event, which kicks off next week in Amsterdam, Netherlands.

In a statement, the company said following the World Health Organisation's (WHO) declaration that the coronavirus outbreak is a public health emergency of international concern, it has decided to pull out from the event.

"LG regrets having to make this difficult decision but the safety of its employees and customers continues to be its number one priority," the company said.

"With the WHO recommending that individuals 'promote social distancing', LG management believes that the most responsible decision is to avoid participating in large public events until the situation stabilises."

The company added that any related meetings and discussions would be rescheduled to take place locally in "more private settings".

It comes days after LG announced it was [pulling out of MWC](#) due to concerns surrounding the coronavirus.

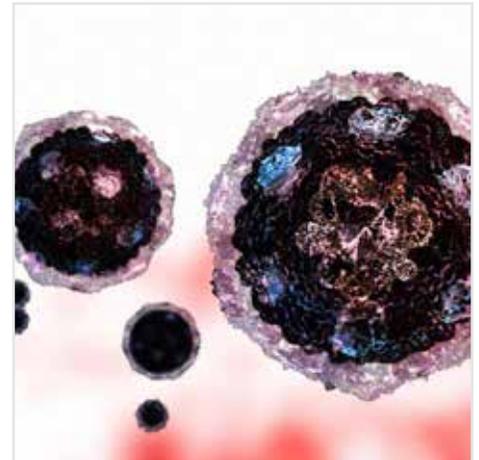
Despite the announcement by LG, the organiser of the world's largest mobile phone show confirmed MWC 2020 would still go ahead as planned later this month.

"The GSMA continues to monitor and assess the potential impact of the coronavirus on MWC Barcelona 2020. The GSMA confirms that there remains minimal impact on the event thus far," GSMA said.

GSMA said it has implemented "many measures" to help mitigate the spread of the virus, including putting in health measures such as a free 24-hour medical service for all attendees that will be operation from 12-29 February, providing on-site first aid facilities, and developing plans that are aligned with health authorities.

These measures adhere to advice from WHO and other health authorities, GSMA added.

During a press event on Wednesday, Barcelona first deputy mayor Jaume Collboni said that, as a preventive measure against the outbreak of coronavirus, there would be "permanent coordination" between GSMA and health authorities for the entire duration of MWC 2020.



HOW THE CORONAVIRUS IS TAKING A TOLL ON TECH MARKETS ACROSS THE GLOBE

BY HOPE REESE/TECHREPUBLIC CONTRIBUTOR

As the coronavirus outbreak (2019-nCoV) has rapidly moved from a small-scale threat to a global health emergency, according to the World Health Organization, it has disrupted economic markets, international travel, and another key sector: Global technology markets.

“A prolonged outbreak can drastically affect the manufacturing obligations,” Nishant Singh, head of technology and telecoms data at GlobalData, said in a press release. “This will impact the product release roadmap of these technology giants.”

China itself has [nine of the top tech companies](#) in the world — such as Alibaba, Tencent and Baidu — almost equal to the US, which is home to the other 11 among 20. The coronavirus will have dire impacts on technology giants that are China-based, such as Huawei, ZTE and device manufacturers like Xiaomi, Oppo and Vivo, and will test these companies’ ability to bounce back after a major setback.

And many other consumer devices, such as Apple’s iPhones, Amazon’s Echo smart speakers, Xbox, and Playstations are produced in China, as are PCs and related products, a staple of the enterprise.

According to Koray Kose, a senior director analyst on Gartner’s Supply Chain Sourcing and Procurement team, “the vast majority [of tech giants] have either direct or sub-tiers into China.” Other industries are affected, as well — those that produce semiconductors, chips and automotive and medical devices, for instance.

The outbreak will likely have an economic impact at a loss of 1% in the first quarter for China’s GDP, according to Kose. “For now, the major focus is China but we see close neighbors developing fast, especially Southeast Asia,” Kose said. “It’s a wake-up call for companies to take these impacts seriously.”

HOW OPERATIONS ARE AFFECTED IN CHINA

Travel limits are posing a real problem for tech giants like Amazon, Microsoft, and Apple. And so are office closures. Google has temporarily suspended its offices in China, Hong Kong, and Taiwan. And Tesla’s Shanghai plant is also being temporarily suspended and will result in a drop in production.

The coronavirus is posing a unique obstacle to Apple, which has suppliers in the Wuhan area. Apple is in the top five smartphone vendors in the country. The tech giant draws a significant portion of its revenue — nearly 15% — from sales in China, according to GlobalData. In a [recent earnings call](#), Apple CEO Tim Cook said the

company is “conducting temperature checks for [China-based] employees” and “frequently deep-cleaning our stores.”

Earlier this week, ZDNet reported that Apple would be [suspending operations there](#) — and the reopening would be delayed to February 10. Apple also closed a retail store, and many of its partner stores have closed shop as well. Expecting a drop in sales, CEO Tim Cook said he was “working on mitigation plans to make up any expected production loss.”

Still, most manufacturing hubs are still conducting business as usual. Foxconn, which makes many products for Apple, Intel, Microsoft, and Sony, will not be making any adjustments due to the 2019-nCoV. Neither will Pegatron, a large-scale manufacturer of PC supplies.

PREVENTING FURTHER DAMAGE

Technology like social media, advanced analytics, and machine learning have helped [locate instances of the virus and map its trajectory](#). For instance, the Center for Systems Science and [Engineering created a live dashboard](#) to display real-time geographic locations of the outbreak, using data from the WHO. But if the spread of the virus continues, the production and distribution of tech will face hurdles.

Companies are taking steps to off-set the losses. According to Kose, “it’s about containment and awareness — meaning putting in measures to slow down or stop the virus from getting to your own supply chain through prolonging vacations, closing down locations temporarily, restricting travel.” Additionally, knowledge of the supply chain — such as “what parts, sub-assemblies, and who are the second and third tiers” — is critical, he says. “It’s important to buffer inventory now and stock locations within reach, and outside the areas with limitations at least for the next few months, if not the quarter,” he adds.

The key lesson, Kose said, is to predict when these kinds of systematic disruptions will occur. “It’s time to review the risk-appetite,” he said, which is “pivotal for the success of the business strategy.”

HACKERS IMITATING CDC, WHO WITH CORONAVIRUS PHISHING EMAILS

BY JONATHAN GREIG/TECHREPUBLIC CONTRIBUTOR

Last week, IBM and Kaspersky [caught hackers in Japan trying to spread malware](#) through emails with links about the coronavirus outbreak that started in Wuhan, China, in January.

Now, Kaspersky and Sophos [have found phishing emails](#) from cybercriminals purporting to be from the Centers for Disease Control and Prevention [and the World Health Organization](#) that are attempts to steal email credentials and other information.

In a blog post, Kaspersky researcher Maria Vergelis [explained that they found phishing emails coming from “cdc.gov.org,”](#) instead of the CDC’s real domain at cdc.gov, that claim to have vital information about the coronavirus.

“The letters claim that the CDC has ‘established a management system to coordinate a domestic and international public health response’ and urge recipients to open a page that allegedly contains information about new cases of infection around their city. The link appears to point to the legitimate CDC website: cdc.gov,” Vergelis wrote.

The link in the email takes you to a page that looks almost exactly like Microsoft Outlook and asks for users to enter their login information. But instead of taking you to another page, your information is passed on to hackers who will then use it to access your email account.

BITCOIN DONATION SOUGHT

Vergelis said they [found another version of the email](#) that asks for people to donate to the CDC with Bitcoin. These emails, coming from the fake “cdc.gov.org,” include appeals for donations to help find a cure for the coronavirus, even though the CDC does not take donations and definitely would not take Bitcoin payment.

In an email full of spelling mistakes, hackers also purported to be from the WHO, [according to a blog post from Paul Ducklin](#), senior technologist at Sophos. The email, which has the official WHO logo, claims to have information on safety measures and asks victims to click a link that will take them to a page with more detailed suggestions for how to protect themselves against the coronavirus.

“The scam page itself is incredibly simple—it can’t have taken the crooks more than a few minutes to put together—and visually effective. The fake page consists of the official, current home page of the World Health Organisation (WHO), with an unassuming popup form on top of it. It doesn’t just look like the WHO’s page in the background, it is the WHO’s page, rendered in a frame that’s embedded in the fake site,” Ducklin wrote.

“You can see why someone who’s nervous about the coronavirus issue, or who has friends and family in the main areas of infection, or who wants to do the right thing by learning more about preventing the spread of the disease might fill in the form, perhaps because they are feeling pressured by (or not thinking clearly because of) the subject matter.”

“Indeed, many companies have already sent emails to their staff to offer advice, so reading additional information that is allegedly from the WHO sounds like a sensible and responsible thing to do,” he added.

Etay Maor, chief security officer at IntSights, said attacks like this will continue to happen as more people search for information about the virus.

“This is to be expected and I have little doubt it will stop. Social engineering and utilizing real world events for phishing and other cyber crime purposes has always been around. We saw this with other sad recent news like Kobe’s death,” he said, referring to Kobe Bryant.

“Whether it’s tragedies, large sporting events like the Super Bowl or healthcare related events, scammers are not shy about using these for their advantage.”

The Kaspersky blog post includes a number of recommendations for how people can protect themselves from these kinds of attacks. People should always check the email address of the sender, the URL of any links sent and the design of pages purporting to be email login portals.

COMPANIES NEED TO BE PROACTIVE

Kowsik Guruswamy, CTO of Menlo Security, said this new campaign shows that companies have to be proactive about training employees how to spot these kinds of emails and attacks, which will become more prevalent especially with major news events like the coronavirus.

“This new campaign shows why existing security technologies will never be able to eliminate phishing attacks with malicious attachments. Attackers are leveraging a life or death situation to trick people into downloading malware. No AI or threat intelligence-based blacklist can ever stop this kind of attack,” Guruswamy said.

Vergelis wrote that companies and regular people should expect to see many more emails like this as hackers realize how effective it is to exploit situations like coronavirus spread.

“The coronavirus as a topic is heating up among malefactors of various kinds, so expect to see other malicious campaigns using the deadly virus as bait. Recently we’ve seen spam campaigns selling masks, which some perceive as the first line of defense against the virus,” Vergelis added.

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