

# DIGITAL TECHNOLOGY FOR THE ADVANCED COVID-19

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The COVID-19 pandemic is the current global pandemic of the coronavirus infection COVID-19 caused by the SARS-CoV-2 coronavirus. The outbreak was first recorded in Wuhan, China in December 2019. The outbreak was declared a public health emergency of international concern by the World Health Organization on January 30, 2020, and a pandemic on March 11. As of 8 August 2020, the pandemic had recorded over 19.2 million cases in more than 188 countries and territories; over 718 thousand people have died and over 11.6 million have recovered.

Many of the early cases were related to the Wuhan market, which sells seafood, as well as birds, snakes, bats and farm animals. Since during the decoding of the coronavirus genome, components close to the coronaviruses of bats and pangolins were found in it, it was assumed that a meeting of bats and pangolins took place in the Wuhan seafood market, creating conditions for the recombination of the coronaviruses of these animals.

Basically, the SARS-CoV-2 virus is transmitted by close contact, most often through small droplets formed when coughing, sneezing and talking. The droplets usually fall to the ground or surface rather than travel long distances through the air. Transmission can also occur through smaller droplets that are able to remain suspended in the air for longer periods of time. Less commonly, infection is possible after touching a contaminated surface, and then to the face. An infected person is most infectious during the first three days after symptom onset, although spread is possible before symptoms appear and through people who do not show symptoms.

Common symptoms include fever, cough, fatigue, shortness of breath, and anosmia (loss of smell). The disease COVID-19 caused by a new type of coronavirus goes through four stages in its development. The first stage lasts from seven to nine days and is called "viremia", it resembles a harmless cold, the specialist noted. The situation changes dramatically in the period from the 9th to the 14th day of the development of the infection, when the epithelial cells of the body are damaged. It was at this time that viral-bacterial pneumonia develops. "In the anatomical space of the respiratory tract, colonization of microorganisms and bacteria occurs." Further development of the infection can be fatal.

If the disease is not taken under control at this stage, then the patient begins to have serious complications - acute respiratory distress syndrome, or noncardiogenic pulmonary edema. He will not be able to breathe without an artificial ventilation of the lungs. If the infection could not be stopped at the third stage, the last, or fourth, the phase of the disease becomes immunosuppression, caused by the defeat of the acquired and innate immunity. "It becomes destructive, and in the patient (to the main infection) such aggressive pathogens as *Pseudomonas aeruginosa* and fungi are attached". According to various virologists from the UK and Germany, the pandemic could last from one to two years. American professor-epidemiologist Justin Loessler believes that COVID-19, on the one hand, will not disappear, and on the other, it will not become an obstacle to the normalization of life, which will come thanks to vaccines or thanks to the acquisition of immunity by the population naturally.

To prevent transmission of infection, it is necessary to observe personal hygiene measures, wash your hands often, do not touch your eyes, nose and mouth with dirty hands, use a disposable handkerchief when coughing and sneezing and throw it away immediately after use. Those who may already be infected are asked to wear surgical masks in public. Social distancing is also one of the recommended ways to contain infection.

Many governments have restricted or banned unnecessary travel to states and regions where the outbreak has occurred. However, in many areas around the world, the virus has reached the national level. This means



that many people who are sick are unable to establish when or where they were infected.

The introduction of strict measures to contain the spread of the COVID-19 virus (forced self-isolation, quarantine, closure of borders and production facilities, restriction of air traffic between countries) began to have a positive impact on the environment. According to experts, given the current economic shocks, it is quite possible to reduce global carbon dioxide emissions and environmental pollution in 2020.

With the spread of the pandemic, the experience of such work has become a valuable source of information and the main tool in the hands of medical workers at the forefront of the fight against coronavirus. Healthcare professionals and caregivers should wear personal protective equipment and follow standard precautions. Contact tracing is also an important technique for identifying carriers of infection and stopping subsequent transmission. However, the government's use of geolocation data from mobile phones for contact tracing during the epidemic raises serious privacy concerns. Various expert groups are developing mobile applications that could help combat the spread of infection without compromising privacy. With the help of technologies such as "Bluetooth Smart", mobile applications will be able to signal the user about close contact with the carrier of the virus and the danger of infection.

The coronavirus, in fact, launched a new project of universal digitalization of the population. Even those who used to be on the Internet before are forced to turn to online services for help. Registration of electronic passes, sick leaves, certificates, loans - all this now has to be done, for the most part, in self-isolation mode through the network.

Limiting the spread of the virus: Technologies such as "LBS services", big data analytics and robotics have been used to track and identify high-risk incidents, restrict movement and minimize human contact. Public awareness: Digital platforms and technologies for transparency and real-time access to information have helped significantly in reducing public panic. Platforms have been developed to collect and disseminate vital information. Location-based alerts have kept citizens safe and informed.

In China, mobile operators provided authorities with information on the whereabouts of people who visited Hubei province when the epidemic was just beginning. This was also helped by the fact that at the end of 2019, China introduced mandatory face scanning when buying SIM cards. This data allowed the authorities to restore the history of the movements of persons who were diagnosed with the coronavirus, and through social networks to warn people in contact with them. Now many people in China wear protective masks, but this does not prevent them from recognizing their faces. In early March, the Chinese company Hanwang Technology (also known as Hanvon) announced the development of technology that allows people wearing protective masks to be identified with an accuracy of about 95%.

US authorities want to use geolocation and facial recognition technology to limit the spread of the coronavirus. In Israel, the government of Benjamin Netanyahu on March 16 allowed the Shin Bet counterintelligence service to use data from local mobile operators to track the movements of people who have been diagnosed with the coronavirus. The government will then use text messages to ask the people around them to self-isolate. In Moscow, thanks to the work of Safe City video cameras, video surveillance is being conducted, according to Comparitech, for violators of the self-isolation regime.

The main area of attracting technology is helping doctors who are fighting the coronavirus, minimizing their risk of infection and saving their time. For example, the Seville-based company Open Salud has launched a free platform for remote consultation, which allows patients to simply fill out an application, describe their symptoms, and then the doctor will contact them virtually.

To guarantee the quality of life, some companies make the most of O2O ("online to offline") services and platforms, as well as solutions based on virtual reality technology, in order not only to meet the basic needs of people during the period of self-isolation, but also to help them overcome boredom and limitations associated

with staying at home for a long period of time. While digital technology can directly help solve problems during periods of isolation, its value doesn't stop there. The ability to use digital technologies for various purposes, such as increasing consumer interest, strengthening partner ecosystems and developing new models of functioning.

We live in an era of globalization, and therefore this pandemic poses a threat to all of humanity. At the moment, establishing an exchange of resources and experience, regardless of who we are, is our only chance to win this war. In fact, the main principle of fighting this pandemic should not be isolation, but cooperation. This is the only way to solve this problem.