

ICT COVID-19 Response: Partnering with Technology Companies to Combat COVID-19

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Executive summary

The COVID-19 pandemic presents an immediate and pressing need for companies across industries to look for leading-edge solutions that promote resilience and recovery in this challenging time. Digital tools and strategies will be crucial to support these solutions.

Most technology companies are already taking action to directly support the healthcare industry, provide information to policy-makers, and safeguard their own workforces and communities, among many other notable efforts.

The World Economic Forum seeks to help by amplifying and aggregating these endeavours from across industries to raise awareness of the successes, identify gaps and better align efforts with the needs of our global communities.

This document is a work in progress that will be updated when needed. It is an initial collection of responses to the COVID-19 pandemic from leading global technology players. This document is not meant to be an exhaustive list, nor does it seek to make recommendations on which efforts are most effective.

Over time, it will be critical to track which solutions are delivering the most value and lessons. It is also clear that execution is critical for the efficacy of the solutions. Furthermore, additional analysis on the public and private collaboration models needed could be conducted to yield additional use cases.

At a glance, as of 10 April 2020, this document:

- Includes 80 initial use cases
- Representing 61 unique companies
- Across six main categories
- Covering all major regions of the world.

Clearly, many technology solutions could serve multiple purposes. For ease of presentation and review, however, all responses are organized under a functional hierarchy:

- 1. Information management:** Efforts that involve sharing, safeguarding and promoting factual information in the fight against the pandemic

Solutions include interactive maps that help chart the spread and containment of the pandemic, advanced screening tools that help the public gather additional information, and message management efforts in conjunction with governments and institutions around the world.

- 2. Detection and containment:** Efforts that support advanced detection of the virus and containment of the spread through non-pharmaceutical interventions

Use cases include leveraging company-owned data sets to inform government preventive measures or their efficacy, and using mobile-based contact tracing applications and mobile payments fee waivers to reduce physical contact.

- 3. Healthcare provider enablement:** Efforts that supply front-line healthcare workers with the tools, technology and capabilities they need to fight the virus

Use cases range from retooling to create personal protection equipment for providers, to leveraging artificial intelligence (AI) technology, chatbots and remote diagnosis based on CT imaging over 5G networks to improve provider efficiency.

- 4. Treatment acceleration:** Efforts that support businesses and organizations working on drug and vaccine discovery through big data and health research

Use cases vary from providing open data sets and open access to scholarly articles, to AI-assisted drug testing in the cloud, and providing high-end computing resources to researchers.

- 5. Economic resilience:** Efforts that support local and global commerce through levers such as critical infrastructure support, business enablement for small and medium-sized enterprises, and prediction models for policy-makers

Use cases include managing and maintaining bandwidth for consumers and businesses, and supporting distance learning platforms for isolated youth.

- 6. Social cohesion:** Efforts that foster communication and cohesion between and among individuals, corporations and institutions

Use cases involve hackathons that address the mental health impacts of social isolation as well as the refurbishing of devices to provide connectivity solutions to those in need.

The vast majority of cases collected are understandably focused on the immediate response – sharing information, supporting quarantine measures and enabling healthcare workers. At the same time, some efforts will contribute to midterm endeavours (building robust predictive capabilities, sourcing new solutions and looking for the right vaccine compounds) and others to the long-term recovery (contact tracing in the “new normal” and building future preparedness).

The Forum is encouraged by the work being undertaken by technology companies around the world. This document presents a subset of the initiatives, not an exhaustive list. It is a thought starter to provoke action and questions on the optimal deployment of constrained resources.

These examples are meant to be energizing. The World Economic Forum looks forward to your [continued collaboration](#) in fighting this pandemic.



Information management

Efforts that involve sharing, safeguarding and promoting factual information in the fight against the pandemic

Solutions include interactive maps that help chart the spread and containment of the pandemic, advanced screening tools that help the public gather additional information, and message management efforts in conjunction with governments and institutions around the world.

Support for official COVID communications

Companies are working with and/or amplifying messages from health authorities to send news updates, warnings and tips to the public.

Companies: **Telegram:** [Source](#)
WhatsApp: [WHO health alert](#)

Self-assessment tools

Screening tools enable the general public to conduct self-assessments via mobile or online platforms. Following the diagnostic, these tools provide a variety of additional resources, including suggested next steps and best practices, self-reporting to governments, symptom monitoring tools and treatment assistance.

Companies: **Apple:** [Apple COVID-19 app](#)
CP Group and Digital Council of Thailand: [Self-D care and uSAFE apps](#)
IBM: [Watson Assistant for citizens](#)
Reliance Industries: [Jio symptom checker](#)

Interactive COVID maps

Interactive mapping technology has leveraged big data to dynamically track case growth, recoveries and trends on both national and international scales. The information is available publicly and used both to spread public awareness and to assist local governments in containment efforts.

Companies: **AccuWeather:** [Source](#)
HERE technologies: [Source](#)
IBM and Weather.com: [COVID map](#)
Kinsa: [US Health Weather map](#)
Microsoft: [Bing COVID tracker](#)
Viattel: [Source](#)
Yandex: [COVID map](#) (in Russian)

Misleading information removal

Facebook, Google, Microsoft, LinkedIn, Twitter, Reddit and YouTube are using AI to remove misleading and/or false information from their websites and platforms, and have issued statements on fighting disinformation.

Companies: [Source](#)



Detection and containment

Efforts that support advanced detection of the virus and containment of the spread through non-pharmaceutical interventions

Use cases include leveraging company-owned data sets to inform government preventive measures or their efficacy, and using mobile-based contact tracing applications and mobile payments fee waivers to reduce physical contact.

Big data solutions

The use of big data for spread tracking has aided containment efforts through predictive forecasting and the measurement of public adherence to localized preventive measures. Insights are gathered through company data that allow local governments, organizations and individuals to track users through mobility data and digital technology.

Companies: **Deutsche Telekom:** [Source](#)
Facebook: [Data for Good programme](#)
Facebook: [US citizens survey for Carnegie Mellon University](#)
Google: [COVID-19 community mobility reports](#)
KT Corporation: [Mobility data for City of Seoul dashboard](#)
Swisscom: [Mobility data to gauge adherence to social distancing measures](#)
Telenor: [Data for Social Good programme](#)
TIBCO: [COVID-19 visual analysis hub](#)
Yandex: [Social isolation index for maps](#) (in Russian)

Contact tracing applications

Mobile-based contact tracing applications help inform individuals and public security officials of users' health status or potential contact with infected or symptomatic individuals. Apps enable functionalities such as emergency alert systems and user tracking via colour coding systems to support containment efforts.

Companies: **Alibaba:** [Alipay health code](#)
Apple, Google: [iOS and Android APIs for contact tracing](#)
MTN Group: [CoronaAlert app](#)
Tencent: [WeChat Fuxuema app](#) (in Chinese)

Scalable epidemics prevention platform

A smartphone app informs users if an epidemic disease has broken out at their location, describes the symptoms of the outbreak and gives prevention advice. The app also allows users to report their symptoms to nearby health offices.

Company: **KT Corporation:** [Source 1](#), [Source 2](#)

Fee waivers for mobile payments

The implementation of a fee waiver on East Africa's leading mobile-money product M-Pesa helps to reduce the physical exchange of currency during the COVID-19 outbreak.

Company: **Safaricom:** [Source](#)



Healthcare provider enablement

Efforts that supply front-line healthcare workers with the tools, technology and capabilities they need to fight the virus

Use cases range from retooling to create personal protection equipment for providers, to leveraging AI technology, chatbots and remote diagnosis based on CT imaging over 5G networks to improve provider efficiency.

Connectivity solutions for hospitals

Companies have coordinated with local governments, hospitals and the military to provide essential network infrastructure and connectivity to healthcare providers in areas of greatest need.

Companies: **CenturyLink:** [High-speed connectivity for emergency hospitals](#)
HPE Aruba: [\\$50 million in secure connectivity kits](#)
Huawei: [5G network at Wuhan Huoshenshan Hospital](#)
Lenovo: [IT equipment for emergency hospitals](#)

Medical protective equipment supply

Major tech firms have leveraged design and supply chain capabilities to facilitate the production and delivery of protective equipment (face masks, testing kits, etc.) and other necessities to front-line health workers and the general public.

Companies: **Apple:** [Source](#)
Facebook: [Source](#)
Google: [Source](#)
Reliance Industries: [Source](#)
TCS: [Source](#)

Robotic laboratory for telemedicine

The establishment of a robotic laboratory will cater to researchers and innovators tasked with developing robots for 5G telemedicine. They will work with medical personnel to build robots that serve hospital needs.

Company: **AIS:** [Source](#)

Scheduling platform access to health workers

Free access to a digital scheduling platform helps match healthcare professionals with organizations and facilities seeking immediate shift coverage. This technology helps organizations address the shortage in front-line labour through digital means.

Company: **Apollo:** [Source](#)

3D printing of medical equipment

Companies and researchers are using 3D printing technology to design and produce medical parts and equipment. The efforts will expedite the supply of essential equipment to front-line medical responders and hospitals.

Company: **HP Inc.:** [Source](#)

AI-assisted diagnosis

Leveraging the 5G network it helped build in a hospital in Wuhan, Huawei rolled out AI-assisted remote diagnosis based on automated CT medical image analysis, allowing service to every patient up to six times faster.

Company: **Huawei**: [Source 1](#), [Source 2](#)

A new quarantine facility

A partnership with Narayana health in India is launching a 100-room quarantine facility and is working to ensure better access to food and nutrition in underprivileged areas.

Company: **Infosys**: [Source](#)

Videoconferencing and SMS management for hospitals

Digital solutions, such as videoconferencing and SMS management solutions, are offered to hospitals, and special packages (“Free Home Epidemic Prevention Package” and “Relief Leisure Package”) are provided to those quarantined due to COVID-19.

Company: **Taiwan Mobile**: [Source 1](#) (in Chinese), [Source 2](#) (in Chinese), [Source 3](#) (in Chinese)

Telemedicine solutions roll-out

The telecommunications operator partnered with a digital health solutions provider to offer access to telemedicine solutions for Canadian citizens, providing an opportunity for those without a personal physician or living in rural areas to get qualified medical support.

Company: **TELUS Health and Babylon**: [Source](#)

Hospital resource planning

The use of geanalytics allows predicting the availability of required hospital resources (e.g. ventilators) across regions. Healthcare facilities guidance supports resource planning, including economic and supply chain considerations.

Companies: **Palantir**: [Partnership with NHSX, Amazon Web Services, Microsoft, Google and Faculty AI](#)
TIBCO: [COVID-19 Visual Analysis Hub](#)



Treatment acceleration

Efforts that support businesses and organizations working on drug and vaccine discovery through big data and health research

Use cases vary from providing open data sets and open access to scholarly articles, to AI-assisted drug testing in the cloud, and providing high-end computing resources to researchers.

AI-assisted drug screening

Providing AI-assisted drug screening helps accelerate new drug development. AlphaFold provides AI-enabled technology to examine protein structures for the purposes of new drug discovery. The technology is assisting the scientific community by automating critical components of drug research in an attempt to expedite the search for a cure.

Companies: **Adaptive Biotechnologies/Microsoft:** [Open data access to decode COVID-19 immune responses](#)
DeepMind: [AI-assisted drug screening](#)
Huawei: [AI-assisted drug screening](#)
IBM: [AI-assisted drug screening](#)

COVID-19 dataset for researchers

In partnership with Microsoft, Chan Zuckerberg Initiative, leading research institutions and the White House Office of Science and Technology Policy, the COVID-19 Open Research Dataset (CORD-19), a database of over 29,000 machine-readable scholarly articles, has been made available to the public. Partners have jointly issued a call to action to the world's AI experts to develop text and data mining tools that can help the medical community develop answers to high-priority scientific questions, aided by the data contained in CORD-19.

Company: **Allen Institute for AI:** [Source](#)

High-performance computing resources for researchers

Amazon, Google, HPE, IBM and Microsoft joined forces to support critical COVID-19 research by partnering with the White House in a COVID-19 High Performance Computing consortium, to provide supercomputing software and applications expertise free of charge to help researchers rapidly advance scientific research for treatments and a vaccine.

Company: **COVID-19 High-Performance Computing Consortium:** [Source](#)

Access to patented technologies

HPE, Intel and Mozilla signed the Open COVID Pledge, granting free access to all of its patented technologies for the purpose of diagnosing, preventing, containing and treating COVID-19.

Companies: **HPE:** [Source](#)
Intel: [Source](#)
Mozilla: [Source](#)

Access to data analysis platform

Free access to commercial versions of this data platform helps developers, researchers and data scientists working on COVID-19-related projects.

Company: **Neo4j:** [Source](#)



Economic resilience

Efforts that support local and global commerce through levers such as critical infrastructure support, business enablement for small and medium-sized enterprises, and prediction models for policy-makers

Use cases include managing and maintaining bandwidth for consumers and businesses, and supporting distance learning platforms for isolated youth.

Network bandwidth management

Companies have taken action across the world to tackle the challenge of network upkeep and bandwidth usage. Telcos and tech firms have worked with local governments to maintain and expand networks and, to the extent possible, curtail bandwidth consumption to improve connectivity.

Companies: **AT&T, Comcast, Verizon:** [Source](#)
Netflix: [Source](#)
T-Mobile US: [Source](#)

Access to distant learning solutions

Through the use of distance learning software and platforms, companies have enabled educational institutions and individuals to adapt to remote learning environments. Online platforms have been made available free of charge to minimize disruptions in student learning and academic curriculums.

Companies: **Avaya:** [Source](#) **TCS:** [Source](#)
Google: [Source](#) **Vodafone:** [Source](#)
Huawei: [Source](#) **Yandex:** [Source](#) (in Russian)

Access to digital collaboration solutions

Companies have helped business improve remote collaboration by opening up teaming services free of charge or at reduced rates. Services include virtual data rooms and virtual meeting capabilities.

Companies: **Cisco:** [Source](#)
Cortado: [Source](#)
Microsoft: [Source](#)

Marketing support for SMEs

Companies have dedicated resources to aid small and medium-sized businesses in marketing, advertising and online payment services to drive revenue and maintain business continuity.

Companies: **Google:** [Source](#)
SK Telecom: [Source](#)
Telia Finland Oyj: [Source](#)
Zenefits: [Source](#)

5G-aided smart construction and unmanned distribution

Expertise in 5G is aiding with unmanned distribution technology and smart construction in COVID-19 stricken areas.

Company: **China Unicom:** [Source](#)

Donation platform for health equipment

A partnership with the Digital Council of Thailand is introducing Helpital, a central donation platform for the collection of donated health equipment for distribution to hospitals in need. The donated equipment will directly support front-line health workers by improving protective measures.

Company: **CP Group**: [Source 1](#), [Source 2](#) (under construction)

Mobile network services for health workers

The Ministry of Health of Portugal has signed an agreement with the major mobile operators in Portugal (Altice, NOS, NOWO and Vodafone) to provide National Health Service professionals engaged in COVID-19 treatments with additional mobile and voice packages at no cost.

Company: **NOS Portugal**: [Source](#) (in Portuguese)

Access to digital sourcing platform

Providing temporary free access to SAP Ariba Discovery means any buyer can post their immediate sourcing needs and any supplier can respond regarding delivery.

Company: **SAP**: [Source](#)

Meals for health workers

Commission fees for small and medium-sized businesses are waived and free meals are offered to healthcare workers and first responders.

Company: **UBER Eats**: [Source](#)

Subsidized taxi service for health workers

Offering subsidized taxi transportation helps health workers and the delivery of healthcare kits in Russia.

Company: **Yandex**: [Source](#) (in Russian)

Customer financing support

HPE Financial Services is designating more than \$2 billion in financing specifically to help customers with their financial challenges stemming from the COVID-19 crisis, including cash-flow or liquidity issues.

Company: **HPE Financial Services**: [Source](#)



Social cohesion

Efforts that foster communication and cohesion between and among individuals, corporations and institutions

Use cases involve hackathons that address the mental health impacts of social isolation as well as the refurbishing of devices to provide connectivity solutions to those in need.

Community help platforms

The expansion of a digital community help portal enables individuals to request and offer assistance in their communities. The feature includes diverse support related to baby supplies, transport, food, etc.

Companies: **Facebook:** [Community help](#)
NextDoor: [Help center](#)

Public hackathons

Companies have joined forces with the World Health Organization to host a hackathon to build software solutions that tackle some of the challenges related to the pandemic. They developed a list of key challenges for participants' focus that include finding solutions to issues affecting health, vulnerable populations, businesses, communities, education and entertainment.

Companies: **WHO, Facebook, Microsoft:** [Source](#)

Contributors

Most of the technology applications mentioned in this document were submitted to the Information Technology and Digital Communications Industry team directly by our partners during a one-week period to obtain a snapshot of how technology can be leveraged to address COVID-19. The World Economic Forum thanks them and is encouraged by all the work they do – far beyond their own companies. Additional cases were added through our collaboration with the Boston Consulting Group, which also provided the typology to organize the cases.

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