How China is Using Digital and Technologies to Combat COVID-19

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COVID-19 has turned into a global crisis, evolving at unprecedented speed and scale. It is creating a universal imperative for governments and organizations to take immediate action to protect their people.

It is now the biggest global event—and challenge—of our lifetimes. As such, it is changing human attitudes and behaviors today and forcing organizations to respond. However, the need to respond won’t end when the virus’s immediate threat eventually recedes.
The speed with which China has mitigated the impact of COVID-19—from the identification of the first case, to outbreak, to containment, to the resumption of a “normal” way of life—is unprecedented. Digital business models and new technologies play an important role in the country’s success.

Specifically, China uses digital and technologies in four critical ways:

• **To contain the spread of the virus:** Technologies such as location-based services, big data analytics and robotics have been applied on a grand scale to track and identify high-risk cases, limit movement and minimize human-to-human contact.

• **To keep people informed:** Digital platforms and technologies that provide transparency and access to real-time information are critical to easing public panic. In China, platforms have been established to aggregate and disseminate vital information. Location-based alerts have kept citizens safe and informed.

• **To ensure quality of life:** Companies are leveraging online-to-offline services and platforms, as well as virtual and augmented reality solutions, to not only satisfy basic necessities of self-quarantined people, but also help them overcome the boredom and limitations associated with staying at home for extended periods of time.

• **To re-ignite productivity:** Companies across China have used digital technologies to resume business operations. Efforts have included using live-streaming events to keep consumers engaged, leveraging IoT and robotics for automated manufacturing, and applying elastic digital workspace solutions to enable employees to resume work from their homes.

Now, other countries are entering the early stages of the coronavirus outbreak. Governments and business leaders around the world can learn from China’s experiences to mount a speedy and effective response against the virus.
China reported its first case of COVID-19 in December 2019. The coronavirus outbreak tested the resilience of the Chinese people and the economy. More than 3,000 families have lost loved ones. Large corporations and small-and-medium enterprises, alike, have been greatly impacted by a drop in demand, supply shortages and manufacturing delays.

However, China is now seeing a light at the end of the tunnel. In a matter of just three months, the country went from a massive outbreak to containment and, most recently, to economic recovery. The speed with which the country moved through the phases of the crisis—from the first case identified to outbreak to containment to resumption of “normal” operations—is unprecedented. As a point of comparison, it took almost six months to contain SARS in 2003 and nearly eight months to win the fight against H1N1 in 2010.
Undoubtedly, the stringent policies and regulations issued by China’s central government played a central role in stabilizing the number of COVID-19 cases. In addition, digital business models and technologies have played an important role in lessening the spread and mitigating the social and business impact of the pandemic.

As other countries enter the early stages of the coronavirus outbreak, China’s experience offers valuable insights that can potentially help governments and companies accelerate their successful response to the pandemic. Of particular interest is the way China applied digital business models and technologies to: 1) contain the spread; 2) keep citizens, students and employees informed; 3) ensure quality of life; and 4) re-ignite productivity (see Figure 1).
I. Contain the spread
- Track and identify high-risk cases
- Contain movement and enforce quarantine
- Minimize human-to-human contact

II. Keep people informed
- Aggregate and share real-time information
- Alert people to risk via mobile channels

III. Ensure life quality
- Use online-to-offline services to meet daily needs
- Elevate virtual experiences

IV. Re-ignite productivity
- Keeps customers engaged, online
- Maintain manufacturing capacity, flexibly
- Resume work and collaboration, remotely

Figure 1: China’s effective response to the coronavirus pandemic included innovative uses of digital and technologies in four key areas.
Over the past three months, China has worked diligently to contain the spread of the coronavirus. These efforts have paid off; the number of new domestic cases has fallen to nearly zero in most major cities.

This success has not come easily. Strict policies have been enacted to track travelers’ movements, quarantine high-risk cases and minimize public contact. None of these policies would have produced the desired outcomes if they weren’t supported by technologies such as location-based service, big data analytics and robotics.
I. Containing the Spread

Track and identify high-risk cases

While the rest of the world struggles with a shortage of testing kits and limited hospital capacity, China has leveraged location-based services (LBS) and big data analytics to identify high-risk cases without overwhelming the healthcare system.

Here is how it works. Local authorities collect and aggregate all the recent travel histories, including movements and itineraries, of patients with confirmed infections. Coupling this data with data from the national ID system, local authorities can quickly identify others that might be in close contact with the patients. In addition, 10 days after the outbreak, a state-owned enterprise – Chinese Electronic Technology corporation (CETC) – developed a WeChat mini program (“Close Contact Detector”) that allows citizens to self-check their risk level (see Figure 2). As of today, more than 100 million Chinese citizens have performed the self-check. Through this solution, more than 70,000 people have been identified and alerted as high-risk.

Figure 2: The “Close Contact Detector” helps citizens protect themselves.
I. Containing the Spread

Contain movement and enforce quarantine

China’s major telecommunications companies also acted fast. They partnered with internet companies such as Alibaba to develop a QR color code system. The system uses telecom data to reveal and track everyone’s risk level, based on where the person has traveled and with whom they have been in contact (see Figure 3). Even today, Chinese citizens need to show their QR code before entering any public area, including offices, shopping malls and restaurants. This innovative digital solution helps contain the movement of high-risk individuals, while making sure businesses can maintain their operations.

Figure 3: A QR color-coded digital solution helps control infection risks.
Technology also has been used to track and quarantine high-risk cases and people that traveled to areas with high rates of coronavirus infection. A Bluetooth-enabled tracker is used in Hong Kong to enforce travel restrictions for inbound travelers who have been asked to stay home for quarantine. These individuals are asked to wear a wristband, which is paired with their cellphone (see Figure 4). If they leave their quarantine location or remove the wristband, the cellphone automatically detects their movement and sends an alert to authorities, who can then take appropriate enforcement actions. The actions of the Hong Kong government have enabled the city to successfully “flatten the COVID-19 curve” relative to other geographies.
I. Containing the Spread

Minimize human-to-human contact

Tracking and quarantining high-risk individuals were critical steps, but insufficient to contain the risk. One out of every three infected persons shows no significant symptoms throughout the duration of their illness, which means a lot of infected people go undetected. For that reason, it is important to minimize human-to-human contact during the outbreak.

In China, all kinds of robotics have been deployed to perform “human-touch” tasks. For example, patrolling robots roam the streets to test body temperatures. Community drones are used to disperse public gatherings, monitor quarantine sites, and even remind people to wear face masks (see Figure 5).

Additionally, other robots have been deployed to perform high-risk tasks. In Wuhan, sanitizing robots have been widely used to disinfect surgical rooms in hospitals, as well as quarantine zones and facilities (see Figure 6).

Figure 5: Community drones help keep the virus at bay.

Figure 6: Medical robots sanitize Wuhan’s hospitals.
Keeping People Informed

In times of emergency, transparent and real-time information is critical to easing public panic. In a broad sense, citizens have the right to information about the overall trends of the outbreak. And, on a granular level, citizens want to know about the real-time situation of their neighborhoods. In China, both forms of information sharing have been adopted. Platforms have been established to aggregate and share information with citizens. Companies have also built alert functions to minimize risks for their users.
Aggregate and share real-time information

Technology places all the information people need at their fingertips. Through a WeChat mini-program developed by DXY (DingXiangYuan), people can access COVID-19 case information, updated hourly, for China and globally. The solution uses analytics to also provide insights and trends by regions. Additionally, platforms such as Dianping.com and Mafengwo.cn aggregate information, including service availabilities, hours of operation and travel restrictions for all kinds of points-of-interest (POI) (see Figure 7).

Figure 7: Dashboards provide access to virus-related data and POI Information.
II. Keeping People Informed

Alert people to risks via mobile channels

Companies operating in China have been active in providing new digital services to combat COVID-19. In collaboration with Accenture, insurance company AIA Hong Kong has built and launched the COVID-19 alert service on the AIA Connect app (see Figure 8). This solution allows registered users (AIA customers and non-customers, alike) to receive alerts regarding COVID-19 cases in different districts throughout Hong Kong. Users who are within 200 meters of buildings with probable or confirmed cases of coronavirus infection will immediately receive mobile alerts from the app. Users can also choose to view details such as case number, gender and age for each listed case. This feature combines data related to the spread of the infection from the Office of the Government Chief Information Officer with global positioning system (GPS) and geo-fencing technologies.

Figure 8: AIA Connect alert services keep Hong Kong residents safe.
When shops are all closed and people are quarantined at home, how can they satisfy their basic living needs? How can they overcome the boredom and limitations that arise after more than 30 days of staying at home? In China, online-to-offline (O2O) businesses play an important role. Wide adoption of O2O and online service platforms not only facilitate grocery shopping, but also fulfill dining and medical needs. Artificial reality (AR) or virtual reality (VR) experiences make it possible for people to visit museums or zoos without leaving their homes. There is no pure brick-and-mortar business in China anymore.
Use online-to-offline services to meet daily need

The emerging O2O platforms have set a new norm for shopping experiences in China (see Figure 9). Unlike traditional eCommerce, which requires customers to wait days for their orders to be delivered, consumers that purchase goods on O2O platforms can receive them in an hour, delivered from their neighborhood stores. Traditional businesses, such as high-end hotels, leading restaurants and boutiques, which used to shy away from offering services online are increasingly collaborating with O2O platforms like Meituan and Ele.

Importantly, O2O services aren’t limited to shopping for products. New services such as medical consultations are now also available. WeDoctor is a good example of a service that connects patients with doctors online. In addition to gaining medical advice, patients can have OTC (over-the-counter, non-prescription) medications needed delivered to their homes in an hour since the platform connects with offline pharmacies as well.

Figure 9: O2O platforms for grocery shopping and medical consultations help meet basic needs.
III. Ensure Quality of Life

Elevate virtual experiences

Going beyond satisfying people’s day-to-day needs, many platforms and apps have been designed to provide virtual experiences or virtual communities to meet people’s recreational and social needs at home. In China, even under quarantine conditions, people can overcome boredom by, for example, attending their virtual gym class at 2 p.m., browsing virtual exhibitions at history museums at 4 p.m., and then having a real-time chat via a “bullet screen” with other audience watching the same movie at 6 p.m. (see Figure 10).

Figure 10: Real-time virtual experiences and bullet screen chats create new forms of experience.
Re-igniting Productivity

Businesses shutting down and citizens staying home inevitably affects productivity. Companies in China have explored various ways to resume their business operations. Some, for example, are using social networks and live-streaming events to keep consumers engaged. Others are leveraging the Internet of Things (IoT) and robotics for automated manufacturing. Still others are applying elastic digital workspace solutions to enable their people to resume work from home.
IV. Re-igniting Productivity

Keep consumers engaged, online

Businesses with a traditionally heavy offline presence are now exploring digital channels to engage and retain their customers. Many automotive companies, including BMW, VW and Nissan, have launched car-selling campaigns through live-streaming and WeChat mini programs. Real estate companies have launched online sales for their residential listings and leveraged AR and VR to create digital showroom experience (see Figure 11).

Such efforts have proved to be very effective—even exceeding some companies’ traditional retail performance. Consider the success of Dongfeng Nissan’s Spring 2020 live-streaming show. It attracted 900,000 viewers across platforms and generated 20,000 bullet-screen comments in 90 minutes, reflecting consumers’ interest in online interactions.

Figure 11: Automotive and real estate companies are experimenting with various online channels.
IV. Re-igniting Productivity

Maintain manufacturing capacity, flexibly

Chinese manufacturers are looking to resume production of their goods, despite the labor shortage. Lenovo utilizes 5G, IoT and robotics technologies to enable intelligent manufacturing in its Wuhan manufacturing plant. High-precision intelligent robots, coupled with automated processes, have enabled production to resume with a limited human workforce.

Additionally, some local manufacturers who own modularized production and dust-free workshops are shifting their capacity to meet their regions’ most urgent needs—face masks and personal protective equipment (PPE). For example, BYD retrofitted more than 100 production lines and is now able to produce up to five million face masks per day. This makes BYD one of the largest mask manufacturing plants in the world (see Figure 12).

Figure 12: Manufacturing flexibility is seen in Lenovo’s production plant in Wuhan and BYD’s face mask production line.
Resume work and collaboration, remotely

Many companies in China have started using digital tools to resume work remotely. One tool that has recently become popular is DingTalk. Over the past two months, it has expanded its capacity and launched new features, including daily health updates, emergency notice releases, virtual meeting spaces for more than 300 participants, and group live-streaming capabilities to enable efficient collaboration (see Figure 13).

In addition to such collaboration tools, businesses have also considered building up elastic digital workplace solutions to position them for greater resiliency and productivity in the future. An important first step involves creating a plan to enable remote work at scale. Accenture serves as a good example in this regard. With an elastic digital workplace solution that includes clear guidelines and policies, stable collaboration platforms and access tools, agile staffing model and virtual support functions, Accenture Greater China was able to mobilize more than 12,000 employees (80% of total employees) to work from their homes during the outbreak, while still driving the business forward and serving clients in the region.
Lessons Learned

China offers a few examples of how digital and technologies can be deployed to help manage and recover from COVID-19. For business and government leaders determining how to rise to the challenges posed by the global pandemic, China’s experience can offer valuable insights.
Lessons Learned

As governments and businesses develop the digitally enabled responses to the challenges, leaders should ask themselves three key questions:

1. **Why are we taking these actions?**

   While digital business models and technologies can help address immediate challenges during the lockdown, their value doesn’t stop there. As China has demonstrated, digital enablers can be used for a variety of purposes such as boosting consumer engagement, strengthening partner ecosystems, and enabling new operating models. Customers will remember companies who choose to respond proactively to address, inform, and mitigate during challenging times. The lesson? **Take action to not only address immediate needs but also lay the foundation for what can be done next.**

2. **What value are we delivering?**

   China has applied digital technologies in a highly pragmatic way. All innovations there are delivering concrete values to society, customers and business. For example, the new alert feature via mobile can help the society to contain the spread, allow its users to be aware and safer, thereby reducing insurance claims and gaining loyalty for the business. The lesson? **Don’t apply technology for the sake of applying technology. Apply technology for the sake of the society—customers, employees and businesses you are trying to protect and empower.**

3. **How can we get solutions delivered?**

   During the outbreak in China, Internet giants such as Alibaba and Tencent actively partnered with cross-industry players and platforms to deliver solutions. Yes, China’s ecosystems are unique and more holistic; for other markets, it is worthwhile to explore non-conventional partnerships to unlock products, services and data required, at scale and speed. The lesson? **We’re in this together. No single organization can beat COVID-19 by itself. Game-changing solutions require unified efforts.**
On April 8, 2020, China lifted its 76-day lockdown in Wuhan. Today, the people and businesses there are shifting from a period of “Pause” to “Rebound.” They are emerging from the pandemic more resilient and more determined than ever. Both the use cases and lessons learned from China’s applications of digital and technology can help other affected regions follow a similar path.
To help our clients navigate both the human and business impact of COVID-19, we’ve created a hub of all of our latest thinking on a variety of topics.

Each topic highlights specific actions which can be taken now, and what to consider next as industries move towards a new normal.

From leadership essentials to ensuring productivity for your employees and customer service groups to building supply chain resilience and much more, our hub will be constantly updated. Check back regularly for more insights.

VISIT OUR HUB HERE
The cases quoted in this report are sourced from official websites of businesses, APPs, and WeChat applets, including Douyin, Autohome, Tencent Video, Freshippo, elm.me, Mafengwo, DingXiangYiSheng, WeDoctor and Codoon.

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