LES CONSEILLERS DU COMMERCE
EXTÉRIEUR DE LA FRANCE
CHINE

CHINA

COVID-19

A Catalyst for Innovation

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ACKNOWLEDGEMENTS

CONTENTS

INTRODUCTION

Epidemic crises are tragic situations for all affected. However, they can also point towards ways in which society can evolve and develop.

We know that the SARS (Severe Acute Respiratory Syndrome) crisis in 2003 saw certain Chinese companies adapt to the crisis and turn it into a development opportunity. SARS is widely considered to have been a catalyst for the emerging e-commerce industry in China. People who were confined to their homes to avoid contracting the deadly virus flocked to online stores. Alibaba's Taobao platform in particular was launched at the height of the SARS epidemic. This platform, which generated a turnover of around 37 billion Euros in 2019, is now used by hundreds of millions of people every day.

Nearly two decades later, China is once again facing a major epidemic. The spread of COVID-19 across China has had a devastating effect both on people and economic activity. But while the COVID-19 epidemic has locked down dozens of Chinese cities to varying degrees, tech giants have responded en masse and are cooperating with the public authorities to offer services tailored to the needs of consumers in these circumstances and provide digital tools to help citizens and the government fight the disease, demonstrating great speed and agility in adapting to the crisis. Once again we have seen certain Chinese economic players, as well as certain non-Chinese companies present in China, adapt by introducing new innovations and speeding up the development of existing innovations in order to respond to the crisis.

As an illustration of the impact this situation has had on online behavior, QuestMobile [1] found that the average time spent online by Chinese people on their mobile phones increased from 6.1 hours per day in January 2020, to 6.8 hours per day during the Chinese New Year on January 25, 2020. It then increased again to 7.3 hours a day after the new year holiday, when lockdown measures were introduced and the return to work delayed.

Naturally, given this is primarily a health crisis, there have been major developments in the health sector during this period, not least the development of testing kits, which, thanks to the speed and scale at which they have been produced, now make it possible to test thousands of people every day.

It should be noted that these innovations are accompanied, on the one hand, by supportive financial measures, and on the other hand, by new regulations specific to the COVID-19 crisis. It remains to be seen as to whether this support will continue once the crisis is over.

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[1] https://www.questmobile.com.cn/research/report-new/82

In terms of financial support, these measures, which mainly benefit SMEs, have taken different forms (see below), and support from the Chinese State is continuing as activity resumes in China. For example, by encouraging SMEs to make use of technological tools (videoconferencing, cloud services, etc.), it has allowed them to gradually resume work in an orderly fashion at a lower cost.

Among regulations, we will cite the regulations relating to the following areas:

- faster registration procedures for medical procedures (testing, clinical studies for new products and approval of new suppliers of protective equipment) which have been strongly encouraged by the authorities. Such procedures have also benefited certain non-Chinese products. The clinical study for Remdesevir (Gilead) is a good example and was approved in two days by the National Medical Products Administration (NMPA) when the process would normally have taken three months;
- emergency responses to be given in the context of crisis management enabling local governments to issue targeted regulations and emergency measures (closure of shops and public places, requisition of emergency personnel and allocation of related resources, closure of companies, introduction of compulsory remote work, etc.);
- restricted movement measures (at apartment, residence, city, province, and country level);
- monitoring of infected people and contamination prevention (regular temperature checks, regular reporting on the health status and recent trips of each individual);
- management of the return to a healthy situation (with the introduction of quarantine measures for people returning from affected countries, social distancing measures in enclosed areas, etc.);
- in the field of personal data: the epidemic has given rise to a large-scale collection of data on personal health, travel history and location tracking. The Chinese authorities authorized this collection without obtaining people's prior consent (which, in principle, is compulsory in China), due to the exceptional circumstances, but the consent of the persons concerned will be required once the epidemic has passed.

The adopted regulations have ledlocal governments and technology companies to put in place tools allowing on the one hand the implementation of these measures, and on the other hand allowing individuals to get through this period. The list of themes addressed in this report just shows how widely and quickly these applications have been developed and how society as a whole has benefited from these innovations and activities.

A vast partnership has effectively been formed between public and private sector entities during this exceptional period, for example:

- the development of a QR code and the "Sui Shen Ma" application from Alibaba, allowing truck drivers and motorists to obtain a 'health passport';
- Tencent's development of a Wechat mini-program for the Beijing bus operator;
- The cooperation between the city of Xiamen and the major home meal delivery platforms to enable meals to be delivered to quarantined businesses;
- Cooperation between China Mobile and the Western China Hospital in Sichuan Province for the use of 5G for the remote reading of medical images;
- Cooperation between the city of Xuzhou and Tuopu Interactive Smart Technology for the development and installation of automatic mask dispensers.

In addition, certain technologies which were previously at very early stages of development saw rapid progress duringthis period:

- Artificial intelligence and *big data*: whether they were for combining data in order to speed up the search for a vaccine, analyzing mass images in record time with a view to diagnosing COVID-19 cases, or sifting through the personal information of the population to check people's health and travel history, these technologies will have no doubt taken an unprecedented quantitative leap during this period (through testing in real conditions and access to databases containing sensitive information);
- Facial recognition: before the crisis, technology mainly enabled the recognition of facial features and body movements; in a situation where people wear masks most of the time, operators developed retina recognition, which can even detect cases where masks are not being worn or worn in a way that does not adequately protect the wearer.
- 5G: 5G which has been on test in China since 2019 but on a limited scale, has been widely used to improve the detection of the geolocation of individuals as well as the live broadcasts of certain medical examinations.
- Autonomous robot vehicles: before the crisis, China had released ambitious and scheduled development plans for unmanned passenger vehicles; although China has announced that it will postpone some of these projects due to the current crisis, other projects however have been widely developed, such as robots which deliver medical equipment and food to their destination without contacting objects or people moving around, and ones which can enter into quarantined areas of hospitals or hotels and disinfect them.
- Drones: in the context of COVID-19, drones have been widely used in China to fight the epidemic. Examples of such use include deliveries of medical equipment, traffic control, mask wearing and confinement checks, application of disinfectant, lighting of construction sites at night for the new hospitals in Wuhan, and temperature checks in apartment buildings.
- Telemedicine: we can use the example of the launch of the *WeDoctor Global Consultation and Prevention Center* App, with 6,000 doctors in China offering free remote COVID-19 consultations around the world.

It should also be noted that many applications / websites and technologies were already running and that their developers were thus able to quickly develop additional layers of services or innovations from those already in place, thereby accelerating the response to crisis.

This crisis, the measures implemented, and the technologies used have (and will undoubtedly still have in the future) a much greater societal impact than during the SARS crisis:

- The situation and the Chinese government almost immediately forced the introduction of remote work, and it is likely that this trend will continue for certain professions. Remote work leads to lower office costs and appears easier to implement now that it has been successfully tested on such a large scale;
- The technologies implemented during this period relate to the limitation or elimination of human contact for a certain number of services. In addition to the practical nature of these services, they are also strengthened by the development of hygienic behaviors in the future in reaction to the epidemic;
- Confinement has of course led to the development of online activities (remote work, online gaming, education, etc.). We have seen, particularly in the field of education and vocational training, that certain communication tools have enabled training organizations to reach a wider audience and at a global level. The use of these tools could end up becoming the norm after the crisis.
- Some companies have been forced to transform their business model in order to survive the crisis. It has, allowed some of them to find a new source of income through online applications.
- These innovations have also been made possible by their mass adoption by the population (be it businesses or individuals), and by the government in order to support the economy and ensure a minimum amount of activity, and people seem to have 'accepted' the impact that some of these technological tools have been having on their personal life.
- Finally, the implementation of these technologies have of course enabled the wide scale development of tools used to collect data and monitor the population.

In this context, the purpose of this document is to identify innovations, some already existing, but whose development has been accelerated by the COVID-19 crisis, and others which have emerged directly as a result of the COVID-19 crisis.

This report constitutes a timely directory of the innovations mentioned above. It is based on public information and information collected from companies cited in this report. It cannot claim to be exhaustive - particularly due to the very short time in which it was produced, the size of the Chinese territory, the speed at which the innovations have been developed during this period, and the ongoing adaptation of new measures enabling their implementation. If necessary, it can be added to over time and with more perspective.

We can already see that with the spread of the epidemic in other parts of the world, a similar dynamic is being played out in these regions.

THE CHINESE STATE AND SUPPORT FOR INNOVATION

In order to stimulate the acceleration of innovative technologies to fight COVID-19, the Chinese government has announced a comprehensive set of financial support measures.

These incentives, which are aimed in particular at SMEs, come in different forms: bonuses ("e-coupons" up to 500,000 CNY), subsidies (up to 30 million CNY per project), special funds (1M CNY), bank loans (granted within 48 hours), support for equipment leasing (1M CNY) or rent cuts (1M CNY) etc ...

This aid is allocated at provincial and municipal level and is very quickly confirmed to the beneficiaries.

The initiatives presented in this document are not exhaustive. They are given as an example to illustrate how certain provinces and municipalities have pro-actively supported their businesses and the emergence of innovative solutions.

Beijing

On February 5, the city of Beijing released several measures to promote the sustainable and healthy development of SMEs and micro-enterprises in the context of the COVID-19 epidemic.

The city of Beijing will subsidize the cost of research and development for small and micro-enterprises. A maximum of CNY 200,000 will be provided to each small science and technology enterprise as well as to the national innovation demonstration area of Zhongguancun, in accordance with its actual research and development costs.

Other measures apply to all types of SMEs and micro-enterprises, but are not limited to science-technology enterprises, such as the following:

- Suspension of the collection of certain administrative and institutional costs
- Rent cuts
- Tax deferral for those in difficulty
- Increase in the supply of credit and reduction in financing costs

Source: https://m.antpedia.com/news/2355170.html

Shanghai

Help and support for the development of new technologies, new models and new forms of business

The city of Shanghai will accelerate the development of new business sectors, for example, online commerce, online education, online offices, online services, digital entertainment, digital lifestyle, and smart deliveries. Efforts will be made to further develop the health industries, such as online testing, treatment, original medicine, medical supplies and medical devices by providing major support for the development of several fast growing and innovative SMEs.

SMEs will receive more support through the distribution of electronic science and technology innovation coupons; the ceiling for science and technology innovation coupons processed in 2020 should rise from 300,000 CNY to 500,000 CNY.

Telecom operators are encouraged to provide free cloud-based office services for more than 6 months, such as online video conferencing to SMEs severely affected by the epidemic.

Source: Political measures by the Shanghai Municipal People's Government on the effective prevention and control of the epidemic as well as support for the regular and healthy operation of businesses, February 7, 2020, Shanghai Municipal Trade Commission.

http://sww.sh.gov.cn/swdt/247697.htm

Supporting the innovative development of SMEs

In order to support the development of innovative products for the prevention and fight against epidemics, financial support will be granted with a maximum of 1 million CNY per company, with priority given to SMEs which meet the following criteria: SMEs which have been established for less than 5 years, which have made technological breakthroughs and innovations in the fields of detection, medicinal vaccines, medical devices and protective equipment for the prevention and treatment of COVID-19, and which meet the requirements to receive support from the Special SME Development Fund. Support for the financial rental of equipment purchased through leasing will also be allocated to SMEs which have been strongly affected by the epidemic, which produce epidemic prevention and testing equipment, and which meet the requirements to receive support from the Special SME Development Fund. Financial support will be given to these SMEs as a priority with a maximum of 1 million CNY per company.

Emphasis will be placed on smart manufacturing, health care and other emerging industries with exceptional performance during the prevention and fight against epidemics. Priority will be given to "specialized and new" companies, thus supporting start-ups in the fields of diagnostic reagents, medical devices, production of equipment, drug vaccines and protective equipment so as to participate in the 2020 "Maker in China" competition. This innovation and entrepreneurial competition for SMEs will award special prizes to companies taking part in the national final.

Source: Political measures on the effective prevention and control of the epidemic in order to further strengthen the service of businesses and support for the regular and healthy operation of SMEs, March 11, 2020, Shanghai Municipal Commission of Economy and Informatization.

http://www.sheitc.sh.gov.cn/zxqy/685221.htm

Hangzhou

Businesses in Hangzhou will receive stronger support through e-coupons for innovation in science and technology. The ceiling for innovation coupons in science and technology to be processed in 2020 should rise from 200,000 CNY to 500,000 CNY.

Source: Circular published by the Hangzhou Science and Technology Bureau on Supporting Sci-tech Innovations for Epidemic Prevention and Control, February 24, 2020.

https://st.zjol.com.cn/kjjsb/202002/t20200226_11714389.shtml

Anhui Province

Up to 30 million Yuan in subsidies will be awarded by Anhui Province to a single product innovation or a special project contributing to the fight against the virus.

Source: http://ah.people.com.cn/n2/2020/0216/c358266-33800415.html

Chengdu

The city of Chengdu will support the main research technologies for the prevention and fight against epidemics. A maximum of CNY 2 million will be donated to companies and institutions undertaking emergency scientific research projects to combat COVID-19 in Chengdu.

Chengdu will reduce the rent of science and technology start-ups. Up to CNY 1 million in operating grants will be awarded to innovation and entrepreneurship centers that reduce the rent of science and technology start-ups.

Chengdu will provide increased funding support to companies that provide materials for the prevention and fight against epidemics. The loan can be provided within 48 hours at the latest with reduced guarantee costs.

To broaden the scope of the use of e-coupons for science and technology, up to 100,000 CNY in grants will be awarded to a single company that meets certain conditions.

To accelerate the research and development of new products, up to CNY 2 million in grants will be awarded to companies that produce basic technology products.

Source: Policy measures to support businesses in preventing and effectively fighting the epidemic and in promoting scientific and technological innovations, February 14, 2020, Chengdu Finance Office, Chengdu Science and Technology Office .

http://gk.chengdu.gov.cn/govInfoPub/detail.action?id=115515&tn=6

Guangdong Province

In addition to the 8 million e-coupons to support emergency innovations on February 15, Guangdong Province increased the ceiling for these electronic coupons for innovation in science and technology, processed in 2020, to 120 million CNY to support SMEs on technological research for the prevention and control of epidemics.

Source: http://www.gd.gov.cn/zwgk/zcjd/snzcsd/content/post_2909780.html

Guangzhou

Strong support for innovation and entrepreneurship.

40 million CNY will be allocated to support scientific research for the prevention and control of epidemics in scientific and technological enterprises.

Source: Political measures by the municipal people's government of Guangzhou for the fight against COVID-19 and the achievement of economic and social development objectives for the whole year, on March 4, 2020, the municipal people's government of Guangzhou.

http://www.gz.gov.cn/zwgk/fggw/szfwj/content/post_5687670.html

Shenzhen

In 2020, Shenzhen will allocate 200 million CNY (and more if necessary) to support technological research projects for the prevention and fight against epidemics.

Source:http://stic.sz.gov.cn/xxgk/zcfg/szkjcxzcfg/202003/t20200302_19035682.htm

SECTORS AND SEGMENTS

A Massive mobilization of the entire innovation ecosystem supported by the Chinese State

#10

Business Segments

#82

Listed innovations

Most innovations are dedicated to Epidemic Management and Health which together represent 47% of the innovations covered in this report.

The second largest group covers the Leisure, Gaming, Culture & Sports sectors, meant to provide psychological support and maintain the well-being of the population during the period of confinement. After that, comes the Hospitality sector.

#67

Innovators

Private and public players (internet and high tech companies, telecom operators, banks, cities, universities, manufacturers, restaurants, transportation and logistics companies …) have mobilized to fight the virus and to provide new services to citizens and businesses.

Innovation breakdown

Segment	Count
EPIDEMIC MANAGEMENT	12
BIOTECH HEALTH DATA SCIENCES	16
SERVICES & APPLICATION SERVICES	11
TRANSPORT, MOBILITY LOGISTICS	4
REMOTE WORK	5
PUBLIC SERVICES: JUSTICE, SECURITY, TAXES	3
FINTECH, BANKING, INSURANCE	4
HOSPITALITY	10
LEISURE, GAMING, CULTURE, SPORTS	12
EDUCATION	5

As expected, the Top #3 Innovators are:

Innovators	Innovations
Tencent	9
Alibaba	7
Meituan	4

These first indicators are based on public information or information collected from companies mentioned in this report. The purpose of this catalogue is to highlight trends and not to be exhaustive - notably because of the very short time in which it was produced, the size of the Chinese territory, the speed of innovation development in this period and the constant creation of new innovations along with the on-going adoption of new measures that enable their implementation.

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BUSINESS SEGMENTS

Innovations by areas and business segments

	Education	Fintech / Banking / Insurance	Epidemic Management	Hospitality	Leisure / Gaming / Culture / Sports	Health / Biotech / Data sciences	Services / Application services	Public services / Justice / Security / Taxes	Transport / Mobility / Logistics	Remote Work	Total
IA & Medicine						3					3
Virtual art					5						5
Beyond the crisis	1										1
Accelerated collaborations and developments						4					4
Efficiency of Administration		3				1					4
Work management				1						3	4
Traceability of individuals		9			1						10
Public information						5					5
Video Games					4						4
Online justice								1			1
Safe Home deliveries			2								2
Digital Medecine						3					3
Police protection								1			1
Facial recognition and body temperature control			3								3
Contactless	4	1		7		1	1	1	2		17
Online services during lockdown					2		1				3
Risk management							2				2
Telemedecine							2				2
Virtual tourism					1						1
Use of Robots (medical sector)					4			1			5
Autonomous vehicles and drones								2			2

In addition to those directly related to health and the search for treatments and vaccines, the main areas of innovation in the fight against the virus, are, first, the identification and traceability of individuals, crucial to screening and monitoring cases, and, second, contactless applications and services which have had an immediate effect on limiting the spread of the virus.

Innovators

#67

Innovators

The entire Chinese ecosystem has mobilized, with the major Internet players at the forefront, followed by public institutions and the Chinese administration: they have adapted to the circumstances and, in some cases, gone as far as to change regulations in order to allow innovations to develop.

EPIDEMIC & HEALTH MANAGEMENT - BIOTECH - DATA SCIENCES

The catalogue is the result of a survey of innovations that have been validated by the Chinese authorities and released onto the market since the start of the COVID-19 epidemic. These innovations are the result of numerous private initiatives in compliance with the directives and instructions of the authorities. Regarding treatments, the authorities directly relayed the preliminary findings of the WHO. The National Medical Products Agency (NMPA) [the Chinese FDA] implemented a fast-track procedure (Green Channel). The National Health Commission (NHC) [the Ministry of Health] published a directive on the prevention and control of the epidemic, which requires medical institutions to use online resources to reduce pressure on clinics and hospitals (February 3).

Table 1 Priority research areas with immediate, intermediate and longer-term goals

Immediate Goals	Intermediate Goals	Long-term goals
Diagnostics: RNA assays, antibody & antigen assays, point of care detection	Diagnostics: Multiplex diagnostic platforms	Diagnostics: Prognostic markers
Therapeutics: Remdesivir, favipiravir, chloroquine, plasma, TCM	Therapeutics: intravenous immunoglobulin (IVIg)	Therapeutics: Innovative approaches (CRISPR-CAS; RNAi; Cell-based; positive hits from library screening)
Vaccines: Development of animal models	Vaccines: mRNA candidates and candidate viral vectors	Vaccines: inactivated candidates and subunit candidates

Source: WHO-china-joint-mission-on-COVID-19-final-report, February 29, 2020

The innovations observed in China are new developments or known products / processes but the indication of which has been reviewed. It is too early to confirm the effectiveness of these innovations or to assess their level of use. This list does not cover scientific advances or changes in health system policies or management.

EPIDEMIC MANAGEMENT

#12 Innovations

#12 Innovators

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
EPI01	Online platforms for improved infection detection	Identification of patients and traceability of individuals	Services / Service applications	Tsinghua & CMDA	Tsinghua University and the Association of Chinese Doctors have set up several joint systems enabling improved detection of people infected with COVID-19
EPI02	Health registration and declaration form for travelers	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Chinese Customs Administration	Travelers returning to Shanghai must submit an online health registration and declaration form
EPI03	Metro registration QR code	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Shanghai Metro	Users scan the QR code of their metro car to prevent contagion and to be able to track the movements of other passengers
EPI04	"Order and Go" Personalized journeys	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Beijing city bus service	Mini program in Wechat which allows you to buy bus tickets in the form of a QR code and to identify yourself for improved tracking
EPI05	Registration of ID in public transport	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Tencent	Travelers taking the bus or taxi must scan a QR code located on the vehicle in order to record their trip. Registration of people's names on public transport is meant to improve the ability to detect the spread of the coronavirus
EPI06	Tool for checking the presence of infected cases on trains or planes	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Baidu, Tencent	Travelers can enter their train number or flight number when they leave and return to the city and thus see if infected and confirmed cases were present on the same train or plane as their own
EPI07	ID application in metro trains	Identification of patients and traceability of individuals	Transport / Mobility / Logistics	Shanghai Metro	Users scan the QR code of their metro train to prevent contagion and to be able to track passengers
EPI08	"Xing Cheng Ka" movement tracking	Identification of patients and traceability of individuals		State Council	The State Council is launching an App with the three main telecom operators to follow the movements of more than 1.6 billion mobile phone users to issue an estimate of the risk of contagion to people
EPI09	Health rating system	Identification of patients and traceability of individuals		Alipay	Residents are encouraged to self-report their health and travel history for the past few weeks. You have to prove that you are not contaminated via your health QR code, in order to access most restaurants, gyms and shopping centers
EPI10	Face recognition and temperature control	Facial recognition and mass control of body temperature		SenseTime	SenseTime has developed a system for remotely taking temperatures and verifying that masks are being worn correctly when performing facial recognition
EPI11	Remote temperature control	Facial recognition and mass control of body temperature		Megvii	Megvii has developed a contactless system for monitoring the body temperatures of passers-by in public places with high density and footfall
EPI12	Facial recognition with mask	Facial recognition and mass control of body temperature		Facego	During the COVID-19 crisis, Chinese facial recognition companies improved their algorithms to identify people wearing a mask

(For details of the innovations, please refer to the catalogue.)

#7 Related innovations

REF	Segment # 1	Subgroup	Name	Innovator
SAN08	Health / Biotech / Data sciences	Identification of patients and traceability of individuals	Range of testing kits approved by the NMPA	
SAN09	Health / Biotech / Data sciences	Digital medicine	Online medical platforms and hospitals	
SAN10	Health / Biotech / Data sciences	Digital medicine	COVID-19 detection using a smart reading system	AliBaba
SER02	Services / Service applications	Public information	Dynamic maps displaying cases	Tencent, Wechat, Qihoo & Sogou
SER03	Services / Service applications	Public information	COVID-19 case location map	Amap / Alibaba
SER07	Services / Service applications	Risk monitoring	Travel history	China Mobile, Chine Telecom, China Unicom
SER08	Services / Service applications	Risk monitoring	"Shui Shen Ma" mobility certificate	AliBaba

HEALTH - BIOTECH - DATA SCIENCE

#16 Innovations	#14 Innovators

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
SAN01	Provision of High Tech resources to fight against the virus	AI and medicine		SenseTime	SenseTime has provided super powerful computing resources for drug screening and thermal cameras
SAN02	Medical imaging processing	AI and medicine		Deepwise Healthcare	Deepwise Healthcare helps medical staff better interpret medical imagery for clinical diagnostics using AI
SAN03	AI for COVID-19 Hospitals	AI and medicine		Yitu	Yitu launched a smart assessment system, used in several hundred hospitals to analyze and evaluate therapies applied to patients
SAN04	Pharmaceutical products being trialed	Accelerated collaborations and developments			During the epidemic, China launched more than 200 clinical studies testing different types of interventions
SAN05	Accelerated construction of two hospitals	Accelerated collaborations and developments		Huoshenshan / Leishenshan	Many innovations have been used to build two hospitals with a total of 2,600 beds in 16 days
SAN06	Vaccines under study	Accelerated collaborations and developments			Research work for a vaccine is ongoing and is coordinated by the WHO, but no vaccines have yet reached the NMPA clinical trial submission stage
SAN07	Approved medical devices	Accelerated collaborations and developments			In February 2020, 72 requests to register medical devices were urgently approved
SAN08	Range of testing kits approved by the NMPA	Identification of patients and traceability of individuals	Epidemic management		A range of testing kits to detect the virus in real time has been developed in record time
SAN09	Online medical platforms and hospitals	Digital medicine	Epidemic management		During quarantine, patients turned to the internet for diagnosis and treatment
SAN10	COVID-19 detection using a smart reading system	Digital medicine	Epidemic management	AliBaba	Alibaba recently developed an artificial intelligence system to diagnose COVID-19. Alibaba says the new system can detect COVID-19 by CT scan of a patient's chest with 96% accuracy against viral pneumonia
SAN11	Use of 5G for remote medical image analysis	Digital medicine		West China Hospital / China Mobile	West Sichuan China Hospital, in cooperation with China Mobile, uses 5G to have medical images of patients from Hubei Province analyzed live and remotely (thousands of miles away) https://www.youtube.com/watch?v=D7W5759sOVA
SAN12	Hospital robots	Use of robots in the medical system	Services / Service App	CloudMinds	A robot is used in hospitals to guide patients and advise on precautions to take against the epidemic
SAN13	Robot and UV to disinfect	Use of robots in the medical system		Sunay Healthcare & UVD Robot	Sunay Healthcare and UVD Robot Sign Agreement to Design and Use UV Robots to disinfect hospitals
SAN14	Robots to perform nursing acts	Use of robots in the medical system		Siasun	Siasun and the Shenyang Automation Institute have developed robots to take samples from patients' throats https://www.zdnet.fr/actualites/des-robots-pour-combattre-le-coronavirus-39899849.htm; http://www.siasun.com/index.php?m=content&c=index&a=lists&catid=78
SAN15	Automatic mask dispensers	Use of robots in the medical system		Xuzhou / Tuopu City	Tuopu Interactive smart Technology has launched automatic mask dispensers in Xuzhou https://www.tellerreport.com/business/2020-03-06---mask-self-service-vending-machine-appeared-on-the-streets-of-xuzhou-city-.HJQUqAp1rU.html
SAN16	Expert platform for medical waste management	Administrative efficiency		Tsinghua / Solid and chemical waste management center	Tsinghua University and the solid and chemical waste management center of the Ministry of Ecology and Environment of China have set up an expert online platform for the disposal of medical waste

(For details of the innovations, please refer to the catalogue.)

#2 Related innovations	REF	Segment # 1	Subgroup	Name	Innovator
	SER09	Services / Service applications	Telemedicine	Acceleration of online medical services	Baidu / Alibab / Tenscent / Huawei
	MOB02	Transport / Mobility / Logistics	Use of robots in the medical system	Hospital delivery by drone	SF Express

SERVICES - SERVICE APPLICATIONS

#11 Innovations

#9 Innovators

The Alibaba, Tencent, Baidu and Huawei ecosystems, as well as telephone operators, have been widely used by the government to apply its health policy. These large digital companies have messaging tools, means of payment, and video platforms, as well as a whole range of applications which they can adapt in record time to be used to fight against COVID-19. The multitude of data collected on almost the entire population has enabled them to offer a range of services around 2 main subjects: safety and reassurance, as well as contactless services. These innovations have been made available for the government's health strategy while helping to make life more pleasant for Chinese people during this stressful period.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
SER01	Ping An smart Healthcare	Public information		Ping an	Ping An Healthcare has developed an epidemic prevention system providing the population with free information on health and epidemic conditions https://global.chinadaily.com.cn/a/202003/04/WS5e5f0fefa31012821727c2ca.html
SER02	Dynamic maps displaying cases	Public information	Epidemic management	Tencent, Wechat, Qihoo & Sogou	Large Chinese e-commerce platforms have launched their maps to track COVID-19 infected cases
SER03	COVID-19 case location map	Public information	Epidemic management	Amap / Alibaba	Amap has developed a detailed information service indicating the location of infected cases
SER04	Doctor Dingxiang	Public information		Tencent	A real-time dashboard displays infected and treated cases and the number of new cases per day, in China and abroad
SER05	"Contactless" elevators	Contactless		Huawei & Wanglong	Huawei and Wanglong have teamed up to launch a smart contactless system that allows you to call an elevator without touching the buttons
SER06	Special services in the event of confinement	Online services during lockdown		Alipay / Alibaba	Alipay added a range of services to its payment application to deal with lockdown measures
SER07	Travel history	Risk monitoring	Epidemic management	China Mobile, Chine Telecom, China Unicom	Chinese mobile Telecom operators have launched a service that allows users to find out their own travel history during the last 15 or 30 days
SER08	"Shui Shen Ma" mobility certificate	Risk monitoring	Epidemic management	AliBaba	By scanning a QR code in this App, motorists agree to share their personal data with the authorities, in order to show them the activities and journeys they have made during the past 14 days
SER09	Acceleration of online medical services	Telemedicine	Health / Biotech / Data sciences	Baidu / Alibab / Tenscent / Huawei	BATH (Baidu, Alibaba, Tencent, Huawei) have launched many new cloud and AI-based medical services https://www.cnbc.com/2020/03/04/coronavirus-china-alibaba-tencent-baidu-boost-health-tech-efforts.html
SER10	Mini-programs providing support during the epidemic	Telemedicine		Tencent	Tencent has developed a range of mini-programs to follow the evolution of the epidemic and receive online medical and psychological support
SER11	Anti-rumor system	Public information	Public services / Justice / Security / Taxes	Tencent	Tencent launches anti-rumor platform

(For details of the innovations, please refer to the catalogue.)

#4 Related innovations

REF	Segment # 1	Subgroup	Name	Innovator
EPI01	Epidemic management	Identification of patients and traceability of individuals	Online platforms for improved infection detection	Tsinghua & CMDA
SAN12	Health / Biotech / Data sciences	Use of robots in the medical system	Hospital robots	CloudMinds
TRA01	Remote work	Work management	HR Tracking MiniApp	Virtuos
HOT03	Hospitality	Contactless	"Contactless" hotel services	FlyZoo hotel

TRANSPORT - MOBILITY - LOGISTICS

#4 Innovations

#4 Innovators

By definition, transport is a source of risk during an epidemic, because it connects people from different localities and regions, and through the exchange of products. It is also a vital sector in the literal sense, as it supports the transportation of medical products and essential items. It also allows trade to resume, as soon as possible.

Trade between the provinces of China was able to resume thanks to the use of Sui Shen Ma (ref. SER08) which displays the journeys made by drivers during the last 14 days.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
MOB01	Autonomous delivery robot	Contactless		JD.com	Chinese e-commerce giant, JD.com, made its first delivery of medical aid using an autonomous vehicle in downtown Wuhan, the epicenter of the COVID-19 epidemic
MOB02	Hospital delivery by drone	Use of robots in the medical system	Health / Biotech / Data sciences	SF Express	Since mid-February, SF Express has been using drones to transport medical equipment to Wuhan Jinyintan hospital
MOB03	"Contactless" deliveries	Autonomous vehicles and drones	Hospitality	Meituan / Eleme	Delivery platforms such as Meituan and Eleme have deployed contactless delivery, which prevents direct contact between deliverers and customers and prevents the spread of COVID-19
MOB04	Autonomous delivery robot	Autonomous vehicles and drones	Hospitality	Meituan	The Chinese on-demand service platform Meituan Dianping made its first food delivery with a self-designed and unmanned delivery vehicle, on the outskirts of Beijing

(For details of the innovations, please refer to the catalogue.)

#11 Related innovations

REF	Segment # 1	Subgroup	Name	Innovator
EPI02	Epidemic management	Identification of patients and traceability of individuals	Health registration and declaration form for travelers	Chinese Customs Administration
EPI03	Epidemic management	Identification of patients and traceability of individuals	Metro registration QR code	Shanghai Metro
EPI04	Epidemic management	Identification of patients and traceability of individuals	"Order and Go" Personalized journeys	Beijing bus
EPI05	Epidemic management	Identification of patients and traceability of individuals	Registration of ID in public transport	Tencent
EPI06	Epidemic management	Identification of patients and traceability of individuals	Tool for checking the presence of infected cases on trains or planes	Baidu, Tencent
EPI07	Epidemic management	Identification of patients and traceability of individuals	ID application in metro trains	Shanghai Metro
HOT04	Hospitality	Contactless	Robot Nurses in hotels for quarantine	Gaosu Nem Century International Hotel
HOT05	Hospitality	Contactless	Contactless meal delivery	Meituan Dianping
HOT06	Hospitality	Contactless	"Contactless" restaurants	Meituan
HOT07	Hospitality	Contactless	Delivery Robots	Eleme
HOT08	Hospitality	Contactless	Delivery Robots in Hospitals	Keenon Robotics

REMOTE WORK

<table>
<tr><td>**#5**
Innovations</td><td rowspan="2">If there is one aspect of work that will no longer be the same as it was before the COVID-19 crisis, it is remote work. All companies in China had to find solutions literally overnight in order to continue running their operations from home. This forced change had at least 3 consequences. (1) Mass adoption and adaptation of existing solutions which were traditionally reserved for managers such as Microsoft Teams, Slack, Zoom and Citrix. (2) Faster development of competitor solutions by Chinese tech giants: Wechat Work by Tencent and DingTalk by Alibaba which allowed Chinese schools to teach remotely. (3) Finally, better appreciation by managers of the possibilities and merits of remote work combined with more flexibility: "To try is to adopt".</td></tr>
<tr><td>**#2**
Innovators</td></tr>
</table>

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
TRA01	HR Tracking MiniApp	Work management	Services & Application Services	Virtuos	Virtuos has configured a Market App to track employee status to plan for business recovery and to provide assistance to those who need it
TRA02	Live Streams	Contactless		Virtuos	Virtuos organizes live broadcasts of online training and public meetings to communicate the measures that the company has taken
TRA03	Cloud-based work system	Contactless		Tencent	To encourage remote work, Tencent developed an internal cloud-based work system in less than a week and launched it on February 10
TRA04	Secure remote work systems	Work management		Virtuos	Virtuos has configured 2 different remote work systems to allow work from home, including support for very confidential data
TRA05	Teams working in shifts	Work management		Virtuos	Virtuos divided the staff of their largest studio into 2 teams with staggered schedules to reduce the number of people in the office at any one time. To its surprise, productivity increased by around 10% compared to the pre-virus period while the time employees were present reduced by around an hour on average

(For details of the innovations, please refer to the catalogue.)

#1
Related innovations

REF	Segment # 1	Subgroup	Name	Innovator
FIN01	Fintech / Banking / Insurance	Contactless	Adaptation of the banking sector to the COVID-19 crisis	Societe Generale

PUBLIC SERVICES - JUSTICE - SECURITY - TAXES

#3

Innovations

#3

Innovators

In terms of administrative and legal procedures, China already had online tools in place which have enabled it not to be taken by surprise by the outbreak of the virus. Wechat and the internet seem to be the most used tools in this context.

The security sector has implemented facial recognition and temperature measurement tools that had already been implemented elsewhere.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
PUB01	Online court	Justice online		Chinese Courts	While the technology has existed since 2017, the first judgments were rendered "online", i.e. without the physical presence of the parties, during the COVID-19 period https://www.thelawyer.com/coronavirus-and-the-courts-a-boost-for-online-reform/
PUB02	Connected police helmets	Police protection		Kuang-chi	Kung-chi Technology presented a connected helmet for the police and health control forces in order to screen possible COVID-19 patients http://french.china.org.cn/china/txt/2020-03/09/content_75792137_3.htm
PUB03	"Contactless" tax returns	Contactless		Local tax authorities	Local tax administrations have set up Wechat mini-apps and websites allowing tax formalities to be carried out without the need to travel

(For details of the innovations, please refer to the catalogue.)

#1

Related innovations

REF	Segment # 1	Subgroup	Name	Innovator
SER11	Services & Application Services	Public information	Anti-rumor system	Tencent

FINTECH - BANKING - INSURANCE

	#4	Traditional banking establishments have had to face the challenge of mass remote work in an activity categorized as "essential" and highly regulated, and computer and communication technologies have helped them face this challenge.

#4 Innovations

#5 Innovators

Traditional banking establishments have had to face the challenge of mass remote work in an activity categorized as "essential" and highly regulated, and computer and communication technologies have helped them face this challenge.

Although the use of "contactless" applications to limit the spread of the virus has been made easier thanks to the well-established and widely used payment methods already in place on Wechat and Alipay, "contactless" payment operators nevertheless suffered from a drop in transactions linked to the lockdown of the population. Blockchain technology has however found new applications, particularly in the field of insurance for the mass processing of insurance declaration documents.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
FIN01	Adaptation of the banking sector to the COVID-19 crisis	Contactless	Remote work	Societe Generale	Telework and "trading from home" solutions have been successfully implemented in order to ensure the continuity of operations in this essential sector
FIN02	Donation tracking	Administrative efficiency		Hyperchain / Xiong'an	Hyperchain and China Xiong'an have developed a donation tracking platform aimed at improving the transparency and efficiency of donations https://www.scmp.com/tech/blockchain/article/3050461/china-start-launches-blockchain-based-platform-improve-donation; https://www.the-blockchain.com/2020/02/06/chinas-hyperchain-plans-to-take-on-coronavirus-with-blockchain-fueled-donation-platform/
FIN03	Acceleration of insurance declaration processes	Administrative efficiency		Blue Cross Insurance	Blue Cross (Asia-Pacifc) Insurance uses blockchain technology to process documents and data more quickly in the insurance declaration process https://www.insurancebusinessmag.com/asia/news/technology/insurers-look-to-blockchain-to-fasttrack-coronavirus-claims-213342.aspx; https://finance.yahoo.com/news/chinese-insurers-tap-blockchain-speed-090000848.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbVbS8&guce_referrer_sig=AQAAAGCOMdJ5-JgV5cHhcMVW_sANpb8KOMZnyNpzvdI5LfIaTNoDPCrYU4dtgbDdY9ULP3z8ZIC6FMTmxqUdMV-L3psUemCD9tgv2NMtpw2SPYW8C7amvQfLzd_qON5fxNDiWv4FpjvHZu3jx9Hem6LRd4rPG9ihrieKyl928X0iL6rS
FIN04	Addition of COVID-19 to the list of diseases eligible for payment of compensation	Administrative efficiency		Ant Financial	With the Chinese government paying for medical costs related to COVID-19, this platform uses blockchain technology to offer basic health plans to 104 million users, many of whom come from the Chinese countryside https://www.insurancebusinessmag.com/asia/news/technology/insurers-look-to-blockchain-to-fasttrack-coronavirus-claims-213342.aspx; https://blockchain.news/analysis/insurance-firms-in-china-and-hong-kong-count-on-blockchain-to-fast-track-wuhan-coronavirus-claims-amid-outbreak

(For details of the innovations, please refer to the catalogue.)

HOSPITALITY

#10
Innovations

#9
Innovators

During the crisis and with the fear surrounding it, priority was given to limiting human interaction as much as possible while keeping an uninterrupted service and ensuring deliveries to people who were confined to their homes. There are also several solutions that have been created to facilitate services in high-risk locations, such as quarantine centers and hospitals.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
HOT01	Mobile canteen	Safe deliveries		Xiamen Business Office	The city of Xiamen collaborates with two major delivery platforms to provide secure meals to businesses that have resumed their activity https://www.sohu.com/a/375313609_411863
HOT02	Safe Working Lunch	Safe deliveries		Sherpa	Sherpas has developed a secure business meal delivery solution
HOT03	"Contactless" hotel services	Contactless	Services & Application Services	FlyZoo hotel	FlyZoo hotel provides "contactless" hotel services such as check-in, billing, delivery of meals thanks to AI and robotization https://baijiahao.baidu.com/s?id=1660211854323390489&wfr=spider&for=pc
HOT04	Robot Nurses in hotels for quarantine	Contactless	Transport / Mobility / Logistics	Gaosu Nem Century International Hotel	While many hotels have become quarantine centers, Gaosu Nem Century is using robots to deliver medication and "contactless" meals http://www.aiimku.com/news/show.php?itemid=471
HOT05	Contactless meal delivery	Contactless	Transport / Mobility / Logistics	Meituan Dianping	Meituan Dianping has developed a "contactless" solution for the delivery of meals ordered online https://tech.sina.com.cn/roll/2020-02-14/doc-iimxxstf1433921.shtml
HOT06	"Contactless" restaurants	Contactless	Transport / Mobility / Logistics	Meituan	By applying the Meituan "contactless" solution, many restaurants are transformed into "contactless" restaurants https://tech.sina.com.cn/roll/2020-02-28/doc-iimxyqvz6431682.shtml
HOT07	Delivery Robots	Contactless	Transport / Mobility / Logistics	Eleme	The "Chi Tu" robots are put into service in the quarantine zones in Wenzhou to deliver meals ordered online https://baijiahao.baidu.com/s?id=1657875877958868685&wfr=spider&for=pc
HOT08	Delivery Robots in Hospitals	Contactless	Transport / Mobility / Logistics	Keenon Robotics	Keenon Robotics has deployed a large number of meal delivery robots in hospitals and quarantine zones in more than 40 cities https://technode.com/2020/02/19/tech-for-good-keenon-robotics-deploys-meal-delivery-robots-to-over-40-cities/
HOT09	Luckin Coffee contactless dispensers	Contactless		Luckin Coffee	With the arrival of the COVID-19 crisis, Luckin Coffee set up "Luckin coffee EXPRESS" vending machines in hospitals in Wuhan to offer doctors "contactless" coffee http://hebei.ifeng.com/a/20200221/8371076_0.shtml
HOT10	Shared employees	Work management		Freshippo Supermarket	Freshippo Supermarket works with many restaurants closed due to an epidemic to "share" employees able to work https://tech.sina.com.cn/roll/2020-02-18/doc-iimxyqvz3772440.shtml

(For details of the innovations, please refer to the catalogue.)

#3
Related innovations

REF	Segment # 1	Subgroup	Name	Author
MOB03	Transport / Mobility / Logistics	Autonomous vehicles and drones	"Contactless" deliveries	Meituan / Eleme
MOB04	Transport / Mobility / Logistics	Autonomous vehicles and drones	Autonomous delivery robot	Meituan
LOI06	Leisure / Gaming / Culture / Sports	Virtual tourism	Online tourism	AliBaba

LEISURE - GAMING - CULTURE - SPORTS

#12 Innovations

#12 Innovators

In the traditional cultural sector, we have not yet seen any digital tools which have emerged solely from the situation triggered by the epidemic, but instead we have seen an increase in the use of already existing tools to make content more accessible to the public and reach a wider audience. The digital leisure segment has benefited from the crisis and its leaders have announced various free measures to reduce the discomfort of being confined in one's home. At the same time, thanks to their financial, human and technological resources, Tencent and its competitors have been able to quickly launch online solutions meant to improve the lives of their users.

REF	Name	Subgroup	Business Segment # 2	Innovator	Descriptions
LOI01	Shanghai Portable Museum	Virtual art		Shanghai Museum	The Shanghai Museum converts its content to "mobile" format, accessible via QR code on Wechat or other platforms
LOI02	UCCA Sonic Cure	Virtual art		Kuaishou	The Beijing UCCA museum is developing a platform with Kuaishou to stream an online concert with artists based in different locations
LOI03	Icouncil	Virtual art		Beijing Council	The Beijing auction house Council Auction is organizing an auction on Wechat for the benefit of the Beijing United Charity Foundation
LOI04	How Museum - Stand Together	Virtual art		Yitiao	The How Museum in Shanghai organized an auction on the Yitiao platform for the benefit of children and nurses who are at the forefront of the fight against the virus
LOI05	Mini games Suzhou Museum	Virtual art		Suzhou Museum	The Suzhou Museum launched an online game inspired by a screen that had been exhibited during an exhibition. This game encourages the public to use the museum's digital tools
LOI06	Online tourism	Virtual tourism	Hospitality	AliBaba	Alibaba provides live virtual tours of tourist attractions on its Taobao shopping platform
LOI07	Free 'Justice' Video Game	Video games		NetEase	Netease allowed players to play their game 逆水寒 (Justice) for free and created a character wearing a mask
LOI08	Free 'Overwatch' Video Game	Video games		Blizzard	Blizzard made its Overwatch game free to play during the extended holidays
LOI09	Free 'Eastward Legend' Video Game	Video games		Kingsoft	Kingsoft Released its Eastward Legend Game for free until 24 February
LOI10	New game based on the fight against COVID-19	Video games		Ace game	Ace Game developed the game, Ni Xing Zhe (i.e. those who march against the crowd), a popular little game that depicts different people involved in the fight against COVID-19
LOI11	Free Movie streaming	Online services during lockdown		ByteDance	Bytedance purchased the copyright to the movie "Lost in Russia" for 700 million CNY to stream it for free at the time it was scheduled for release in cinemas during the epidemic
LOI12	Free movie streaming from Hubei	Online services during lockdown		Tencent	People with IP addresses in Hubei Province can watch movies and TV series on Tencent Video for free

(For details of the innovations, please refer to the catalogue.)

EDUCATION

#5
Innovations

#5
Innovators

The appearance of COVID-19 and the decision to keep schools and universities closed after the Chinese New Year holidays has quickly widened the range of remote education options available. In just two weeks, between February 17 and March 2, 2020, the official revised date for resuming classes (online), content, digital platforms and teacher training have been implemented, with new teaching and learning practices that will have a lasting impact on this sector in China and around the world. Primary and secondary education (6-18 years), which up to now was conducted mainly in classrooms, has made a technological leap to a 100% online multimedia model, where parents must interact with teachers. The digital divide is increasing, however, because many students have insufficient access to the necessary interactive tools. Universities, which already offered remote options (MOOCs for example), have strengthened their offering and developed robust teaching and learning systems and platforms, which they will be able to use after the crisis.

REF	Name	Subgroup	Business Segment # 2	Editor	Descriptions
EDU01	Air Classes	Contactless		Shanghai Commission on Education	To enable students in public schools to continue their studies at home while schools are closed due to COVID-19, the Shanghai Education Commission launched "Air Classes", an extensive multi-media program https://www.shine.cn/education/2003134209/; https://www.shine.cn/news/metro/2003023280/; http://sh.bendibao.com/news/2020224/217371.shtm
EDU02	Remote Programming Workshop	Contactless		Netspring	To allow teachers to continue to train at home in an original way despite the crisis, Netspring offers remote workshops to certain teachers, with a view to acquiring notions of algorithmics, in particular through fun software intended for children, developed by MIT medialab
EDU03	I-class program	Beyond the crisis		Shanghai Tongji University	Tongji University used the COVID-19 crisis as an opportunity to question and explore new ways of teaching and learning that may continue beyond the crisis and face future new challenges https://www.thepaper.cn/newsDetail_forward_6285322
EDU04	Video mixing and online lessons	Contactless		Shanghai Tech University	Shanghai Tech University's response to the COVID-19 crisis is a mix between pre-recorded video classes (75%) and interactive online classes http://www.shanghaitech.edu.cn/2020/0317/c1001a50545/page.htm
EDU05	Bo ì you to digital tools	Contactless		Shanghai Campus - New York University	The Shanghai campus of New York University has developed a distance learning platform for itself, but which can also be deployed in other universities https://shanghai.nyu.edu/news/nyu-shanghai-makes-digital-toolkit-available-fellow-universities-going-online

(For details of the innovations, please refer to the catalogue.)

INNOVATION SHEETS
BY
SECTOR & SEGMENT

INDEX

SERVICES & APPLICATION SERVICES

TRANSPORT / MOBILITY / LOGISTICS

REMOTE WORK

PUBLIC SERVICES / JUSTICE / SECURITY / TAXES

FINTECH / BANKING / INSURANCE

HOSPITALITY

LEISURE / GAMING / CULTURE / SPORTS

EDUCATION

EPI01 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
Online platform for improved infection detection	**TSINGHUA** **CMDA**

Tsinghua University and the Association of Chinese Doctors (CMDA) have set up a cooperation which has made it possible to develop different systems, such as a self-evaluation system, a smart testing system, a remote consultation platform using medical imaging, and a smart community surveillance and investigation system to fight COVID-19. These systems have been deployed in Wuhan.

EPI02 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
Health registration and declaration form for foreigners	**Chinese government**

Foreigners returning to Shanghai by the Shanghai Expressway, the airport and train stations, must submit an online health registration form. Foreigners can complete this form as soon as their travel itineraries have been determined.

Chinese customs also require all incoming and outgoing travelers to complete the online health declaration form upon entering and / or leaving the country.

Scan the QR code to complete the incoming visitor health form.

Scan the QR code to fill out the health declaration form upon entry.

EPI03 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
QR code for registration in the metro	**Shanghai Metro**

Passengers are invited to enter their car number by scanning the QR code located inside each car.

QR codes are available in the center of each car, above the windows.

Each of the 7,000 cars of the Shanghai metro has been assigned a unique number, which will automatically appear on your phone once the QR code has been scanned by Alipay or Wechat.

You then enter your mobile phone number. Mobile phone numbers are linked to each Chinese identity card, which allows authorities to determine the identity of travelers using their personal information.

Scan the QR code located on the windows. This QR code is unique for each metro car.

Enter your phone number and record your trip on the metro. Each metro car has a unique code. If you change lines, scan the new code to register again.

EPI04 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
"Order and Go" Personalized journeys	**Beijing city bus service**

A mini program on Wechat has been developed and updated to help passengers book and pay for their bus trips. A QR code is automatically created in the mini-program once the person has paid for their ticket.

This allows passengers to enter personalized journey buses by scanning their QR code at the entrance of the bus rather than taking a ticket.

Personalized journey buses have relatively fixed passenger groups that can be traced as they have provided their personal information by registering their name, which can be done directly in the mini-program when purchasing bus tickets.

Use the mini-program to personalize your bus trip, and reserve your seat.

EPI05 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
ID registration for public transport	**Tencent**

Registration by name on public transport should improve the ability to track the spread of COVID-19.

Travelers taking the bus or a taxi will have to scan a QR code located on the vehicle in order to record their trip.

When users scan the code for the first time, they will be prompted to confirm their personal information before continuing their journey.

Scan the QR code located in front of the passenger seat and enter your mobile phone number to record your trip.

EPI06 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
Tool for verifying the presence of infected cases on trains and planes.	**Baidu, Tencent**

Travelers can enter their train number or flight number when they leave and return to town and see if there are any confirmed cases of infection on the same train or plane as their own.

Enter your name, ID card number, departure date and train number or flight number to see if there are infected patients in the same vehicle as you.

EPI07 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
ID application in metro trains	**Shanghai Metro**

Users scan the QR code of their metro train to prevent contagion and to be able to track passengers.

Since February 28, Shanghai public transport users have been encouraged to scan a QR code as soon as they enter the metro train. They will then be asked to confirm their mobile phone number in order to verify their previous trips, their exposure to risk areas and their compliance with the imposed quarantine period.

Shenzhen, Ningbo, Nanjing and Shenyang also rolled out the system in early March, extending it to some bus and taxi networks.

EPI08 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
"Xing Cheng Ka" movement tracking	State Council

The State Council is the highest governmental authority in China.

The State Council mini-program (or mini-app) uses the big data of the three main mobile operators to monitor the movements of more than 1.6 billion mobile phone users across the country in the previous 14 days, and on this basis issue a color code (green, yellow, or red) for each user with a single click. This color code determines whether the person is considered to carry no risk, a medium risk or a high risk. This color code is then requested at the entrance to buildings, rooms, shops, etc.

Home page of the mini-app.

Issuance of a "green" code for the holder of the telephone number indicated opposite.

Indication that the person has been in Beijing for the last 14 days before the date of issue of the code indicated above.

EPI09 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
QR Code: Health rating system	**AliBaba**

The Chinese tech giant has developed a health QR code based on its payment platform Alipay to monitor the health of employees and allow entry to the office.

The system analyzes the geolocation data recorded by Alipay for each individual and compares it to the risk zones to determine whether a green, orange or red risk code (quarantine of 14 days required) will be issued. This improves the efficiency when entering the office and makes it easier to organize each employee as they return to work.
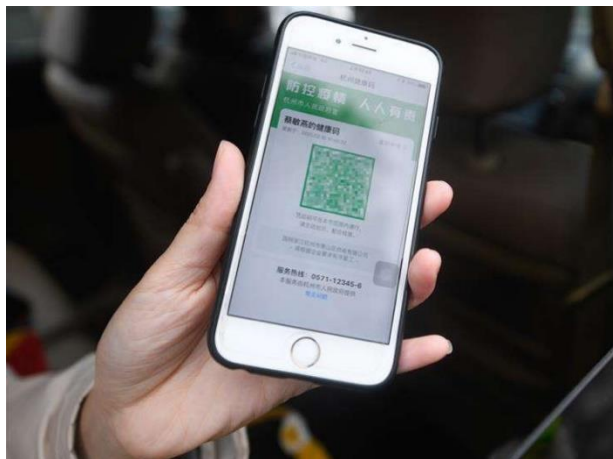
Green code

Free to move about in public

Yellow code

Isolated for 7 days, if normal will turn to green in 7 days

Red code

Isolated for 14 days, if normal will turn to green in 14 days

QR code of health risk level.

EPI10 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
Facial recognition and temperature control	**SenseTime**

SenseTime has developed a system capable of performing facial recognition, analyzing your temperature, checking that you are wearing a mask and that you are wearing it properly, and recording your presence.

Facial recognition and normal temperature.

Temperature too high. Warning!

The employee is not wearing a mask, the system warns him to wear one and in the correct manner.

EPI11 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
An artificial intelligence temperature measurement system	**Megvii and a few other sellers**

The system uses a front infrared camera to identify the temperature of passers-by in a crowd. Based on the precise knowledge of the human body and facial recognition, it can help screen various public places (train stations, bus stops, metro stations and airports) and other densely populated areas in order to identify abnormal body temperatures.

This system can help solve efficiency and control problems in open spaces using a contactless temperature measurement system, using artificial intelligence, during and after the epidemic. People are not obliged to take off their mask or hat for verification, or to stand behind one another. This smart system can analyze up to 15 people per second and can be deployed at 16 exits at the same time, which allows temperatures to be checked at all exits of a metro station. In addition, thanks to artificial intelligence, only one person is needed to supervise, even in the most populated stations, which reduces the risk of exposure for front-line employees.

Infrared camera and contactless temperature measurement system using artificial intelligence at each subway entrance. It is possible to check the temperature of up to 15 people per second, thus eliminating the need to check each passenger with a thermometer.

EPI12 - EPIDEMIC MANAGEMENT

NAME	INNOVATOR
Facial recognition with mask	**Facego**

During the COVID-19 crisis, Chinese facial recognition companies have improved their algorithms to identify people wearing a mask.

The most recent example comes from Facego, a company based in Beijing, which creates work attendance management software by scanning the faces of employees. Now the software even works on those wearing masks.

Baidu said in mid-February that it had created the first free, open-source facial recognition software to identify people not wearing protective masks. This makes it possible to launch an alert if someone enters an office or a public place without a mask!

SAN01 - HEALTH / BIOTECH / DATA SCIENCE

NAME	INNOVATOR
Provision of High Tech resources to fight against the virus	**Sensetime**

Sensetime is a successful Beijing startup specializing in "computer vision" and "deep learning" which has made the following available:

- super powerful IT resources for the screening of new molecules (drug screening);

- thermal imaging cameras with a capacity of 10 people per second and an accuracy of ± 0.3 ° C

SAN02 - HEALTH / BIOTECH / DATA SCIENCE

NAME	INNOVATOR
Medical imaging processing	**Deepwise Healthcare**

Deepwise Healthcare is a medical artificial intelligence start-up, and has announced the use of medical imaging and AI to improve clinical diagnosis. Their system can diagnose and classify viral pneumonias according to the morphology, extent and density of lesions found by a CT scan. According to this company, traditional manual methods for such a quantitative assessment generally require five to six hours, while the new AI system can perform the analysis in two to three seconds.

Source: https://www.chinadaily.com.cn/a/202003/04/WS5e5f0bf2a31012821727c28f.html
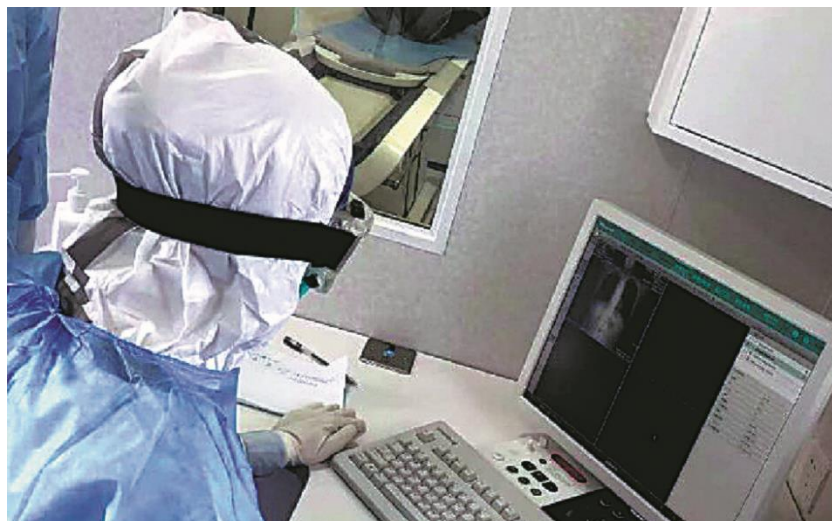
SAN03 - HEALTH / BIOTECH / DATA SCIENCE

NAME	INNOVATOR
AI for COVID-19 Hospitals	**Yitu**

Last January, YITU launched a Shanghai startup specializing in AI - medical imagery , smart cities, facial recognition, etc.
Last January, YITU also launched a smart evaluation system used in several hundred hospitals in China for the quantitative analysis and evaluation of therapies applied to COVID-19 patients, based on medical imagery.
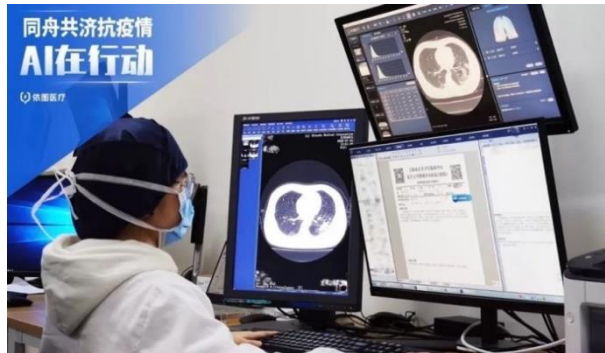
YITU has also developed a medical application for users: advice, remote consultation, booking of medical appointments, getting around the hospital, etc. This application allows the government to refine its knowledge of the situation and the necessary measures.

Mass temperature measurement with an accuracy of ± 0.3°C

Mask wearing detection (99.5% accuracy) and incorrect mask wearing detection (92% accuracy).
Smart evaluation system used in several hundred hospitals in China for the quantitative analysis and evaluation of therapies applied to COVID-19 patients, based on medical imagery.

SAN04 - HEALTH / BIOTECH / DATA SCIENCES
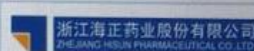
NAME	INNOVATOR
Pharmaceutical products being trialed	**Chinese government**

Currently, there is no proven (or recommended) specific anti-viral or immunomodulatory agent. A wide range of treatments have been used out of compassion in the absence of controlled trials. During the epidemic, China launched more than 200 clinical studies (Chinese national register) testing different types of possible solutions: anti-viral agents, targeting of the virus (for example, convalescent plasma, poly and monoclonal antibodies, immunoglobulins) and severe patient care strategies (e.g., immunomodulatory agents such as IL-1ra and interferon, steroids, ACE inhibitors, vitamin C, statins or antiarrhythmic agents).

Source: WHO coronavirus disease (COVID-19) R&D https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/

Scientific knowledge is growing every day. The following products are considered to have some potential. The results of the studies are not yet known. The preliminary results for Remdesivir are encouraging.

Source: IQvia.

SAN05 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Accelerated construction of two hospitals	**Wuhan and Hubei Government**

Two hospitals have been built and certified to respond to the COVID-19 epidemic.
- Huoshenshan Hospital in Wuhan (1,000 beds) - Leishenshan Hospital in Hubei Province (1,600 beds).

The construction was led by China Construction Third Bureau (with the active participation of Wuhan Construction Engineering, and the municipal government of Wuhan and Hanyang). The two hospitals are operated by different medical units of the People's Liberation Army (Army Medical University, Navy Medical University and Air Force Medical University).

Source: https://www.engineering.com/BIM/ArticleID/19914/China-Built-Two-Hospitals-in-Just-Over-a-Week.aspx

SAN06 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Vaccines being trialed	**WHO et al.**

There are several vaccines being trialed. No project has yet reached the stage of submission to NMPA clinical trials.

Research is coordinated globally by the WHO. See the latest WHO COVID-19 vaccine reports:

Source: https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/

SAN07 - HEALTH / BIOTECH / DATA SCIENCE

NAME	INNOVATOR
Approved medical devices	**Various players**

In February 2020, 72 requests for the registration of medical devices were urgently approved. They include 2 protective medical masks, 14 surgical masks, 17 disposable medical masks, 9 disposable protective suits, 10 disposable surgical gowns, 2 reusable surgical gowns and 2 disposable medical helmets. They also include a disposable surgical helmet, a medical hospital isolation bed, an isolation booth, a disposable surgical towel bag, a disposable sterile operating drape, disposable medical examination gloves, disposable surgical gloves, non-invasive ventilator, nasal tip catheter, heated breathing tube, infrared thermometer, high-flow respiratory humidifier, digital mobile X-ray equipment, disposable interventional surgery bag, disposable endotracheal intubation bag, and a disposable suction bag for sputum. According to the National Bureau of Statistics, there are 65 types of protective medical masks, 164 surgical masks, 334 disposable medical masks and 50 disposable protective suits in China.

SAN08 - HEALTH / BIOTECH / DATA SCIENCE

NAME	INNOVATOR
Range of testing kits approved by the NMPA	**NMPA et al.**

The COVID-19 virus was first isolated on January 7, 2020. In a few weeks, a range of testing kits were developed, using PCR to detect the virus in real time in samples taken from the upper respiratory system or using serology to detect antibodies (IgM and IgG) in the serum or plasma. As of March 13, the NMPA approved 10 nucleic acid molecular biology tests and 6 serological tests.

Source: 国家 药监局 应急 审批 新型 冠状 病毒 检测 产品， http://www.gov.cn/xinwen/2020-03/13/content_5490749.htm

Approved testing kits for the detection of COVID-19

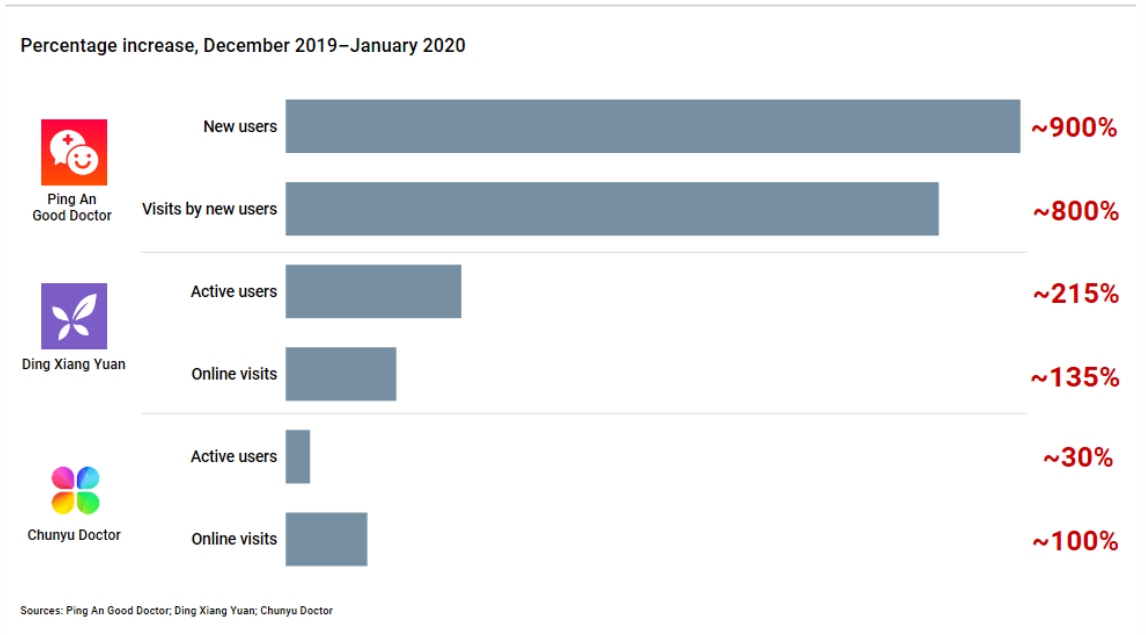|	Product Name	Company	Registration number
1	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent PCR)	Shanghai Zhijiang Biotechnology Co., Ltd.	20203400057
2	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent PCR)	Shanghai Jenuo Biotechnology Co., Ltd.	20203400058
3	New Coronavirus 2019-nCoV nucleic acid detection kit	Huada Biological Technology (Wuhan) Co., Ltd.	20203400059
4	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent PCR)	Huada Biological Technology (Wuhan) Co., Ltd.	20203400060
5	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent PCR)	Sun Yat-sen Daan Gene Co., Ltd.	20203400063
6	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent PCR)	Shengxiang Biotechnology Co., Ltd.	20203400064
7	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescen PCR)	Shanghai Berger Medical Technology Co., Ltd.	20203400065
8	New anti-coronavirus antibody detection kit (2019-nCoV) (colloidal gold method)	Guangzhou Wanfu Biotechnology Co., Ltd.	20203400176

9	New anti-coronavirus antibody detection kit (2019-nCoV) (colloidal gold method)	Innotek (Tangshan) Biotechnology Co., Ltd.	20203400177
10	Six respiratory virus nucleic acid detection kits (microarray amplification method)	Chengdu Boao Jingxin Biological Technology Co., Ltd.	20203400178
11	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent-PCR)	Beijing Zhuo Cheng Hui shares health biotechnology parts Ltd.	20203400179
12	New IgM antibody detection kit for coronavirus (2019-nCoV) (magnetic particles and chemiluminescence detection)	Boosais (Chongqing) Biotechnology Co., Ltd.	20203400182
13	New anti-coronavirus IgG antibody detection kit (2019-nCoV) (magnetic particles and chemiluminescence detection)	Boosais (Chongqing) Biotechnology Co., Ltd.	20203400183
14	New Coronavirus 2019-nCoV nucleic acid detection kit (fluorescent-PCR)	Mike Biotechnology Co., Ltd.	20203400184
15	New antibody detection kit for the new coronavirus (2019-nCoV) (microparticle and chemiluminescence detection)	Xiamen Wantai Kerry Biotechnology Co., Ltd.	20203400198
16	New IgM antibody detection kit for coronavirus (2019-nCoV) (colloidal gold method)	Guangdong Hexin Health Technology Co., Ltd.	20203400199

SAN09 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Online medical platforms and hospitals	**Ping An et al.**

Trapped in quarantine, patients turn to the internet for diagnosis and treatment. Authorities have also asked hospitals to go online whenever possible to free up physical infrastructure. There are now 269 hospitals in China providing this type of service. The provinces with the largest number of such hospitals are Guangdong (57), Shandong (48), Jiangsu (41) and Zhejiang (31). The flow of online patients reached 6 to 6.7 million people per day (during the first week after the Chinese New Year), which was 30% more than at the same period last year (source: "yixuejie zhiku", jiankangjie yanjiuyuan). Market leaders such as Ping An Good Doctor, Ding Xiang Yuan and Chunyu Doctor have seen an expansion of their services and an increase in the number of patients.

Percentage increase, December 2019–January 2020

Ping An Good Doctor	New users	~900%
	Visits by new users	~800%
Ding Xiang Yuan	Active users	~215%
	Online visits	~135%
Chunyu Doctor	Active users	~30%
	Online visits	~100%

Sources: Ping An Good Doctor; Ding Xiang Yuan; Chunyu Doctor

Source: https://www.bain.com/insights/how-the-coronavirus-will-transform-healthcare-in-china/

SAN10 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
COVID-19 detection using a smart reading system	**AliBaba**

Alibaba recently developed an artificial intelligence system to diagnose COVID-19. Alibaba says their new system can detect COVID-19 by a CT scan of a patient's thorax with 96% accuracy against cases of viral pneumonia. And it only takes 20 seconds for the artificial intelligence to diagnose the disease. According to the Nikkei's Asian Review report, humans generally take an average of 15 minutes to diagnose the disease, as there can be more than 300 images to go through. The system has been trained with images and data from 5,000 confirmed cases of COVID-19 and has already been tested in hospitals in China. According to the report, at least 100 healthcare facilities currently use Alibaba artificial intelligence.
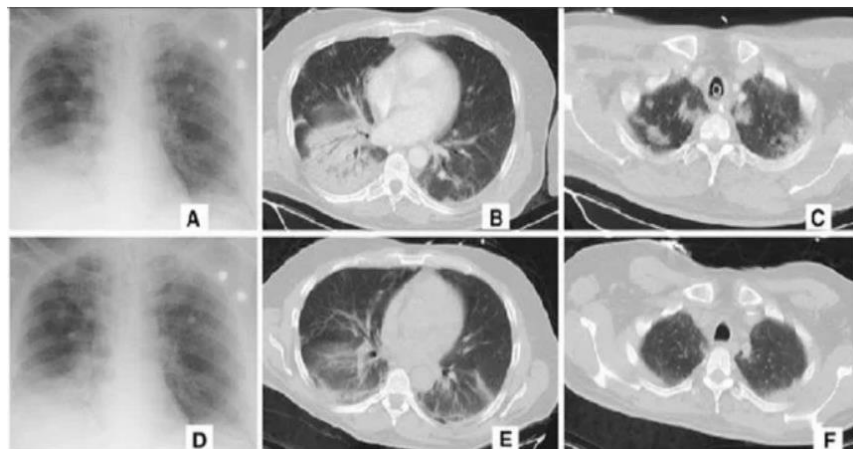
SAN11 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Use of 5G for remote medical image analysis	**West China hospital, China Mobile**

Sichuan Huaxi Hospital is using 5G, in cooperation with China Mobile, to analyze live and remote lung scans of Hubei patients. This allows remote access to experts from another province and alleviates the workload of doctors in Hubei. Transmission by 5G allows low latency and high reliability.

Source: https://www.youtube.com/watch?v=D7W5759sOVA
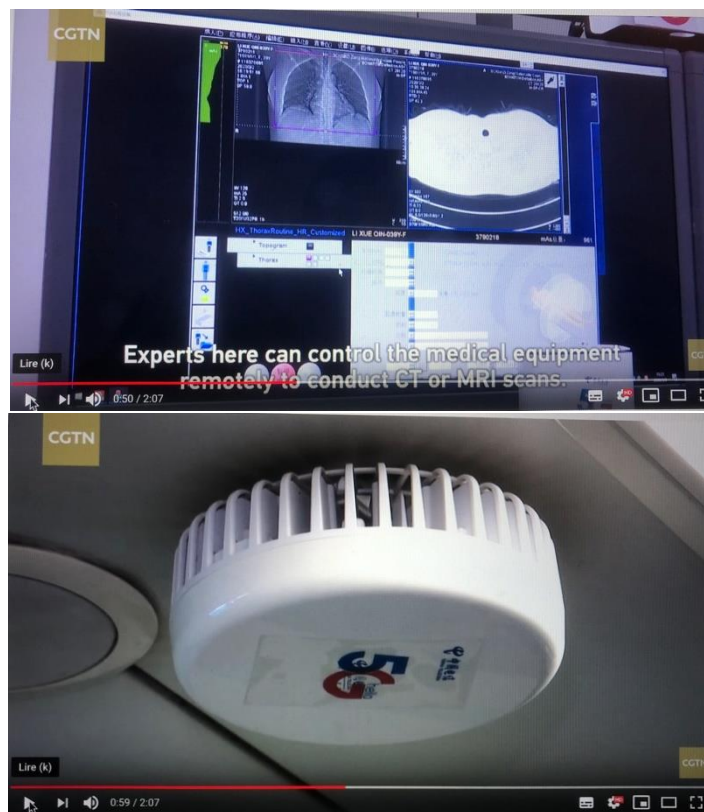
SAN12, SAN13, SAN14 - SANTE / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Hospital robots to guide patients, disinfect, and take samples in the throat	**CloudMind, Mobile et al.** **China**

During the crisis, several robots were launched in hospitals:

- to guide patients and improve awareness and prevention of the epidemic. This robot is located in hospital reception areas and has interactive screens (Hubei subsidiary of China Mobile and manufacturer of CloudMinds robots) (**SAN12)**
- to clean and disinfect the quarantined areas using UV and distribute treatments (**SAN13)**
- to take samples from patients' throats, replacing nurses (source: robot manufacturer Siasun and the Shenyang Automation Institute supported by the Chinese Academy of Sciences) (**SAN14)**

Source:

https://www.zdnet.fr/actualites/des-robots-pour-combattre-le-coronavirus-39899849.htm ;

http://www.siasun.com/index.php?m=content&c=index&a=lists&catid=78

SAN15 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Automatic mask dispensers	**Xuzhou Tuopu Interactive Intelligent Technology**

Xuzhou Tuopu has developed a mask dispenser for the city of Xuzhou. Residents scan their identity cards to pay for their purchases.

In addition to self-service purchase, this device also makes it possible to check identity, detect temperature, sterilize against the virus, check stocks, allocate masks in a reasonable manner, process data, etc. In the future, disposable medical masks as well as products such as disinfectants and alcohol will also be added.

Residents can scan the code to pay for their purchases after swiping their identity cards. However, each identity card can only be swiped once a day, and a maximum of two masks can be purchased at a time.

An application will be launched soon that will allow residents to book online, pay, then swipe their identity card to collect the goods.

https://www.tellerreport.com/business/2020-03-06---mask-self-service-vending-machine-appeared-on-the-streets-of-xuzhou-city-.HJQUqAp1rU.html

SAN16 - HEALTH / BIOTECH / DATA SCIENCES

NAME	INNOVATOR
Expert platform for medical waste management	University from Tsinghua

The Tsinghua University Environmental School, in collaboration with the Center for Solid and Chemical Waste Management of the Ministry of Ecology and the Environment of China (MEESCC), enabled MEESCC to set up a "Expert online platform for the disposal and management of emergency medical waste linked to COVID-19".

SER01 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Ping An Smart Healthcare	**Ping an**

Ping An Smart Healthcare has developed a management system for the prevention and control of epidemics which provides free information services for:

- self-checking of one's health, - answers to epidemic related questions, - psychological self-assessment, - epidemic research on communities.

This solution uses text recognition technology combined with a natural language analysis model and a graphical knowledge tree. This smart platform offers a comprehensive medical service for the testing cycle. This system can help local governments compile statistics and make dynamic decisions for the prevention and control of epidemics as well as monitor the situation of patients at home in real time (interview with Geoff Kau, co-president and director of strategy from Ping An International Smart City Technology).

Source: https://global.chinadaily.com.cn/a/202003/04/WS5e5f0fefa31012821727c2ca.html

SER02 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Dynamic maps displaying cases	**Tencent, WeChat, Qihoo 360 and Sogou**

Large Chinese e-commerce platforms have launched their online maps which locate nearby residents who are carriers of COVID-19.

In more than 170 Chinese cities, residents have the ability to check for people who are infected with COVID-19 in the surrounding area, simply by checking their phones. Instead of disclosing the names and personal information of patients, the maps use data from the Chinese Ministry of Health and indicate the distance between people infected with COVID-19 and the user.

The app also shows the number of infected people in the surrounding neighborhood.
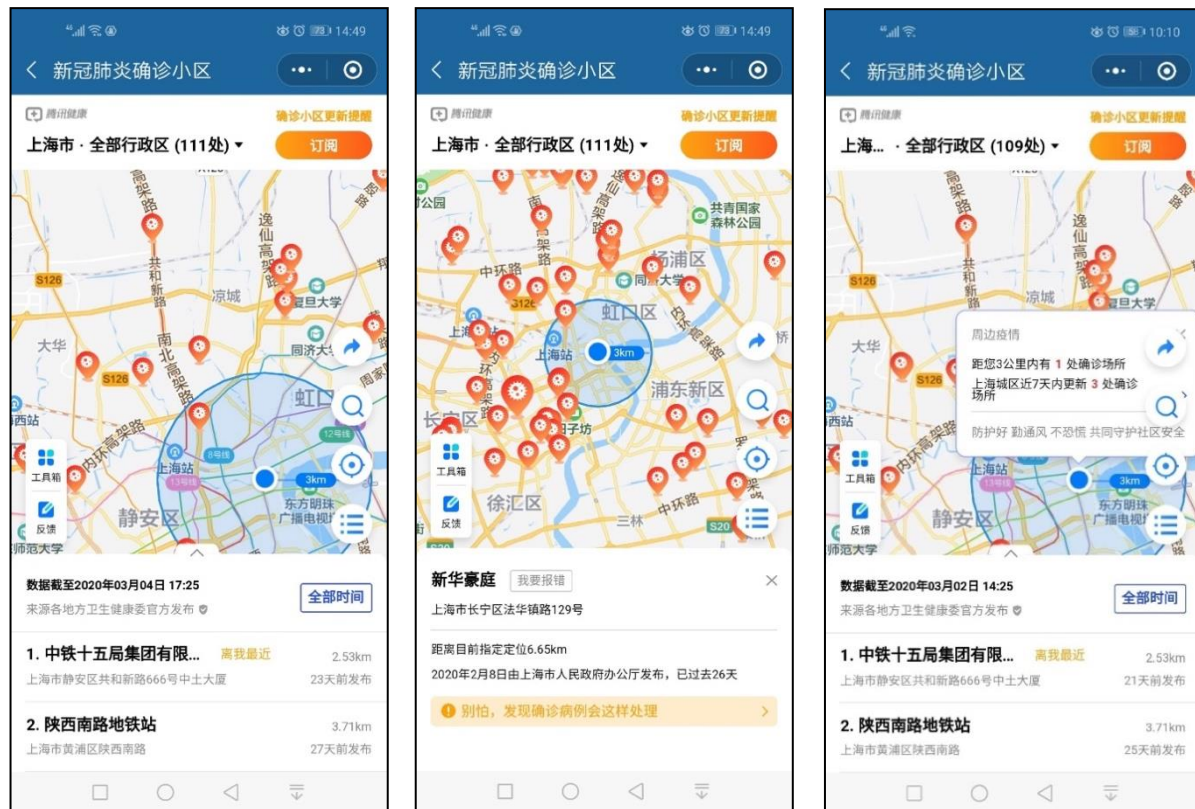
Depending on your GPS location, the application shows you how many infected people are in your neighborhood, within a radius of 3km. The map also shows you the location of confirmed cases.

SER03 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Case location map	**Amap, Alibaba**

AMap is a leading geo-location application in China. Amap was listed on NASDAQ and belongs to the Alibaba group.

Amap has developed a detailed information service indicating the precise location of contamination cases, in real time.

On the home screen, there is a button to access to the latest information on infected cases.
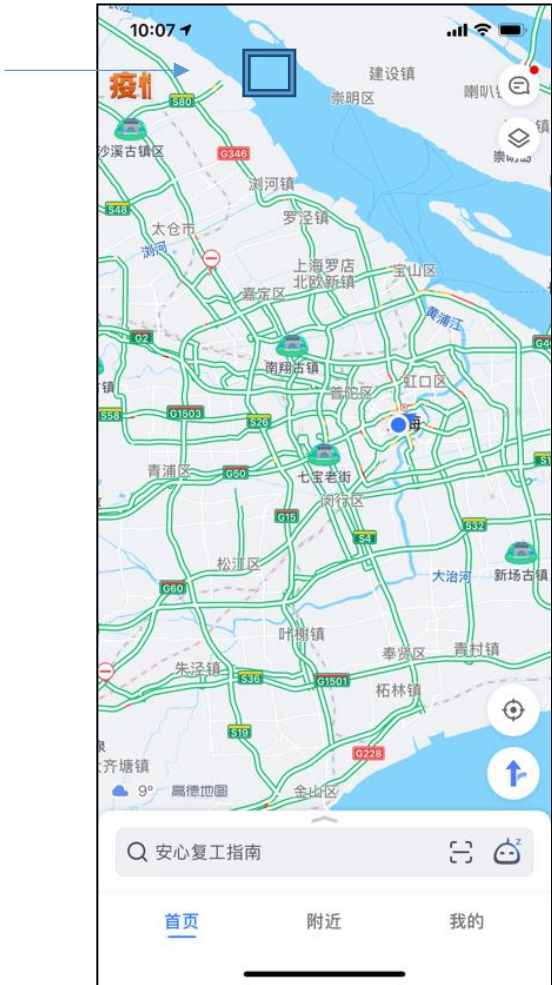
General statistics on the number of confirmed cases and deaths, in China and around the world.

Specialized hospitals near you.

Depending on your location, precise information is provided (even by residence/compound) on infected cases within a certain area around you.
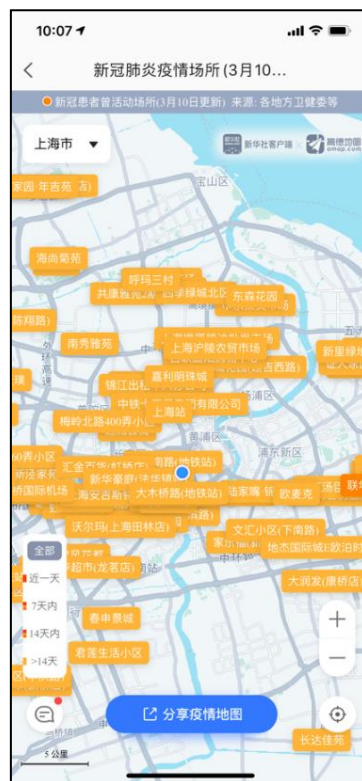
Users can also find out the movements made in the city over the last 14 days by all infected cases, in order to identify the possible areas at risk.

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CHINE

SER04 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Doctor Dingxiang	**Tencent**

A real-time dashboard displays the infected and treated cases and the number of new cases per day, both in China and around the world.

Real time updates of confirmed cases, suspected cases, recovered cases and new cases per day in every Chinese city and every country.

SER05 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
"Contactless" elevators	**Huawei, Wanglong**

During the COVID-19 epidemic, elevators became high risk areas. In order to avoid the transmission of the virus through contact between people and the elevator buttons, Huawei Cloud IoT (Internet of Things: connected objects) and Wanglong Intelligence teamed up to develop a smart system for "contactless" elevators.

The system is operated by the company's IoT platform, by using centralized access to control the elevator, cameras, Bluetooth and other multi-subsystem links so as to call the elevator via a mobile application, a WeChat mini-program, or via a phone's Bluetooth signal.

In addition, to avoid as much physical contact with the elevator as possible, the system reduces long waiting times and unauthorized use of traditional elevators. The system uses facial recognition, Bluetooth phones, Bluetooth cards and bar codes to quickly identify users and call the elevator closest to the person's floor. Once the user has entered the elevator, the destination floor has automatically been selected. The user does not need to select his destination during the whole maneuver and therefore achieves the objective of using the elevator without any contact.
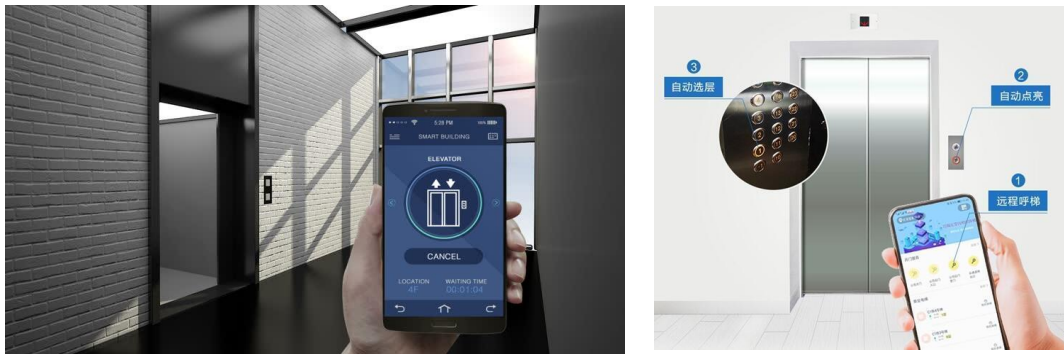
Using your smartphone to control your elevator.

SER06 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Special services in the event of confinement	**Alipay, Alibaba**

Alipay is one of the largest mobile payment platforms and is part of the Alibaba group.

With the arrival of COVID-19, Alipay added a comprehensive range of user services specially designed to deal with the virus and lockdown measures.

Alipay home page.

Button to access "COVID-19" services

By scrolling down the screen, the user will find, for example:

- Direct access to purchase food
- Direct access to purchase hygiene products (masks, gloves, disinfectant, etc.)
- Movies and cartoons to watch online and video games
- Applications for exercising at home
- Online education
- Q&A on the virus and how to fight it
- Up-to-date statistics on the number of cases, with the possibility of locating each case on a map.

SER07 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Travel history	**China Mobile** **China Telecom** **China Unicom**

The three major Chinese mobile operators have rolled out a text service that allows users to request a list of their locations recorded the past 15 or 30 days as a measure to help people report their recent travel history to the authorities.

Some cities require arrivals to disclose their recent locations in order to obtain a pass, which is usually difficult for authorities to verify. Some residential areas in some cities have asked residents for proof that they have not been to Wuhan recently.

Left picture: 3 QR codes of each telephone operator to be scanned according to your operator.

Right picture: The operator immediately sends you your itinerary during the last 15 days and also during the last 16-30 days.

SER08 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
"Sui Shen Ma" mobility certificate	**AliBaba**

The "Sui Shen Ma" mobility certificate application, developed by Alibaba, is, in a way, the new Chinese health passport!

By scanning this QR code, motorists agree to share their personal data with the authorities, in order to justify their activities and journeys made during the past 14 days.

Based on the SMSs sent, tolls passed, deliveries received and paid for at home, the algorithms work and assign a green light, an orange light or a red light to the carrier.

In this situation of controlled mobility, this application was decisive because it allowed trucks to pass from one region to another, with proof that their drivers had not been exposed to high risk areas during the previous 14 days.

SER09 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Acceleration of online medical services	**Baidu, Alibaba, Tencent, Huawei**

The four giants of the Chinese digital sector, Baidu, Alibaba, Tencent and Huawei (known as BATH), have all launched many new medical services aimed at supporting testing, cloud-based medical image analysis, and artificial intelligence.

Alibaba	In January, Alibaba launched an online clinic service on its Alipay and Taobao applications for users in Hubei province, where COVID-19 is believed to originate, and which is the region with the highest number of cases in China. This service, which allowed people to consult with doctors online was later extended to residents of Beijing. In February, the company launched a drug delivery service for people in need of drugs to treat chronic diseases. This situation occurs when hospitals are overloaded with COVID-19 cases and sometimes have few resources to help people with other chronic illnesses who also need urgent treatment.
Baidu	Baidu currently runs an online doctor consultation platform and the company has made this free for all online medical queries. Baidu said the platform has processed more than 15 million user requests and has more than 100,000 doctors on hand to answer questions. Baidu has also provided for free an algorithm called "LinerFold" to genetic testing agencies, epidemic control centers and research institutions worldwide. The algorithm is able to help scientists understand the genetic makeup of COVID-19, and may help efforts to develop a vaccine.
Tencent	Tencent has launched free online health consultation services through five online health care platforms through WeChat. There is also a "chatbot" which allows users to ask questions and obtain a basic diagnosis. A chatbot is an automated messaging service. Tencent also opened its supercomputer facility to help researchers find a cure for the virus, CNN reported. Supercomputers can execute processes much faster than ordinary computers.
Huawei	Huawei's Cloud unit, in cooperation with a company called GrandOmics Biosciences, has developed a tool used to understand the genetic makeup of COVID-19. Huawei's technology is also used by researchers to identify drugs that may be suitable for the treatment of COVID-19. The company's Cloud Computing platform is also used to analyze medical imagery that could help quickly identify patients carrying the virus.

Source: https://www.cnbc.com/2020/03/04/coronavirus-china-alibaba-tencent-baidu-boost-health-tech-efforts.html

SER10 - SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Mini-programs providing support during the epidemic	**Tencent**

Tencent's mini-programs, which can be accessed on WeChat, provide users with statistical updates on the epidemic and its trends, basic medical knowledge, the possibility of self-assessing one's health and risks, remote medical check-ups, psychological support, booking of appointments online, information on hospitals, etc.

-

Tencent also offers readings of AI-assisted medical imaging (specially designed for COVID-19, pneumonia and lung cancer). This technology was launched at Fang Chang Hospital in Wuhan.

SER11– SERVICES & APPLICATION SERVICES

NAME	INNOVATOR
Anti-rumor system	**Tencent**

Tencent has launched an anti-rumor platform and a map-based patient monitoring and alert system. This platform helps circulate information in society and reduces the negative impact of 'fake news'.

MOB01 - TRANSPORT / MOBILITY / LOGISTICS

NAME	INNOVATOR
Autonomous delivery robot	**JD.com**

The Chinese e-commerce giant, JD.com, made its first delivery of medical aid using an unmanned vehicle in downtown Wuhan, the epicenter of COVID-19.

Users can collect their packages by entering the collection number.

Unmanned vehicle moving around the city delivering medical equipment.

MOB02 - TRANSPORT / MOBILITY / LOGISTICS

NAME	INNOVATOR
Hospital deliveries by drone	**SF Express**

Since mid-February, SF Express has been using its drones to transport up to 70 kg of medical equipment to certain hospitals such as Wuhan Jinyintan Hospital. This is the first time that a drone has been used for such deliveries, which took just 7 minutes.

SF Express indicates that each drone can carry 10kg over a distance of 18 km.
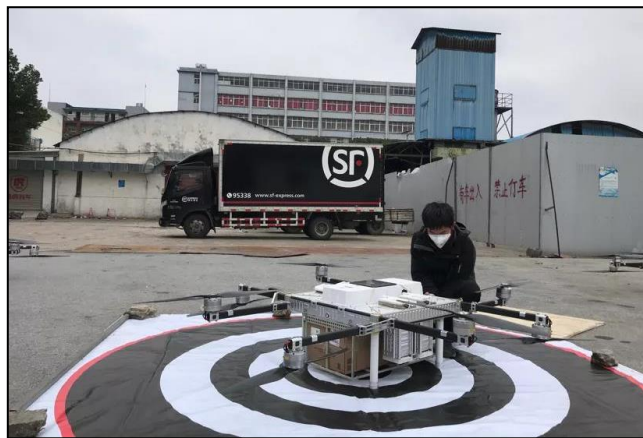
MOB03 - TRANSPORT / MOBILITY / LOGISTICS

NAME	INNOVATOR
"Contactless" deliveries	**Meituan, Eleme**

Delivery platforms such as Meituan and Eleme have deployed a contactless delivery service, which avoids direct contact between delivery drivers and customers and reduces the spread of COVID-19.

Customers and delivery drivers can use the app to determine where to drop off the order. When paying for their order, customers can select "contactless delivery" and then determine where the order should be dropped off.
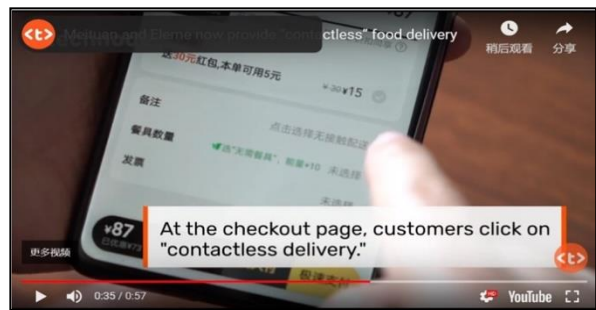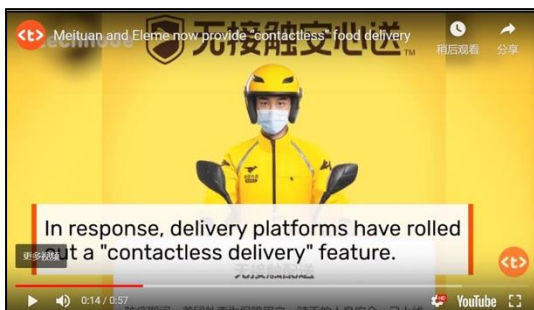
When ordering your food, and when it's time to pay, you can select the "contactless delivery" option, and indicate exactly where you want your order to be delivered. For example, "knock the door", "on the floor", "outside my door", etc.

LES CONSEILLERS DU COMMERCE
EXTÉRIEUR DE LA FRANCE
CHINE

MOB04 - TRANSPORT / MOBILITY / LOGISTICS

NAME	INNOVATOR
Autonomous delivery robot	**Meituan**

The Chinese on-demand service platform Meituan Dianping made its first food delivery with a self-designed and unmanned delivery vehicle, on the outskirts of Beijing. Due to the epidemic, technology companies are speeding up contactless initiatives to prevent the spread of the virus.

Meituan has currently deployed two unmanned vehicles to deliver food to customers in 3 districts located within a radius of 5 kilometers around the depot. Employees are required only to place the products inside the vehicle. The delivery, meanwhile, is performed completely unmanned.
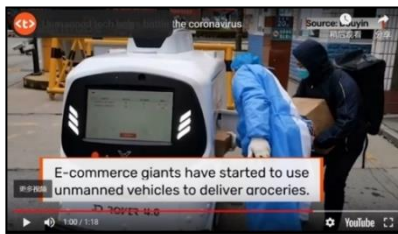
Unmanned food delivery vehicles.

TRA01 - REMOTE WORK

NAME	INNOVATOR
HR Tracking MiniApp	**Virtuos**

The video game developer has set up a Chinese market app to track the status of all its employees. The location, health and expected return-to-work date are reported every day by the employees themselves. The human resources team was able to anticipate the situation and organize the employees who were able to return to the office. During this time, the HR team was also able to provide assistance to those who needed help on their return home. This system also made it possible to share data between Virtuos and local administrations.

Health questionnaire in mobile mini-app.

TRA02 - REMOTE WORK

NAME	INNOVATOR
Live Streams	**Virtuos**

 Organization of live broadcasts of training sessions and public online meetings to communicate the measures that the company has taken. The training sessions helped keep the teams busy during their home lockdown period. Each training session brought together more than 200 participants. About 850 employees attended the general discussion meeting and communicated with the CEO .

TRA03 - REMOTE WORK

NAME	INNOVATOR
Cloud-based work system	**Tencent**

Tencent developed an internal cloud-based work platform in less than a week and launched it on February 10. The challenge was to make it possible to perform all work-related functions and duties online. The cloud has been operating since February 10 for 60,000 employees, with up to 51,000 employees connected at the same time during peak periods.


All office functions on one platform.

TRA04 - REMOTE WORK

NAME	INNOVATOR
Secure remote work systems	**Virtuos**

The Sino French game developer has configured 2 different remote working systems to enable working from home, including the handling of very confidential data. First, it divided its employees into 2 groups according to their needs in terms of computing power and provided 2 suitable solutions. Administrative staff and managers had a direct connection allowing them to control their office workstation from their personal PC at home. This connection is made secure by setting up proxy servers. Game production teams received specially encrypted PCs to use from their homes. The data must go through the company's servers before it can be read. More than 200 employees used these solutions at the height of the crisis.
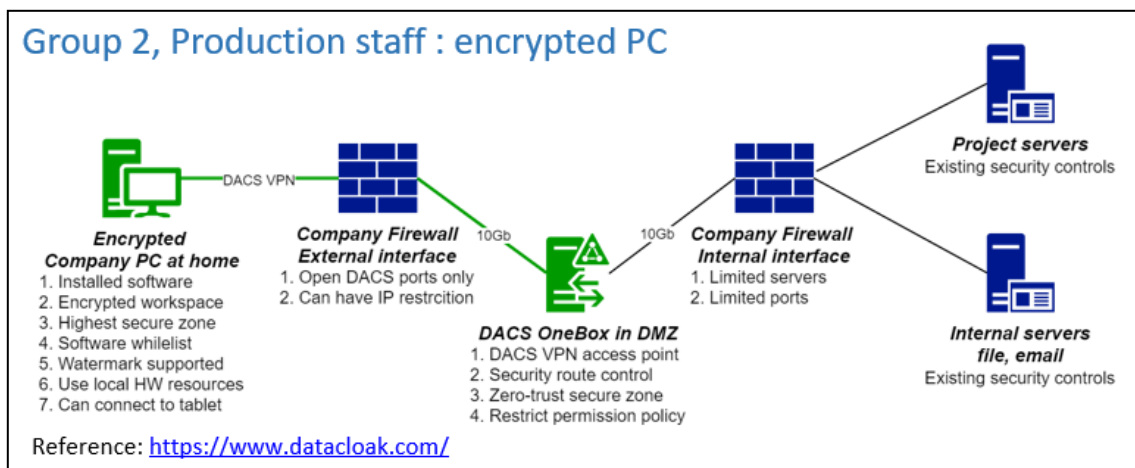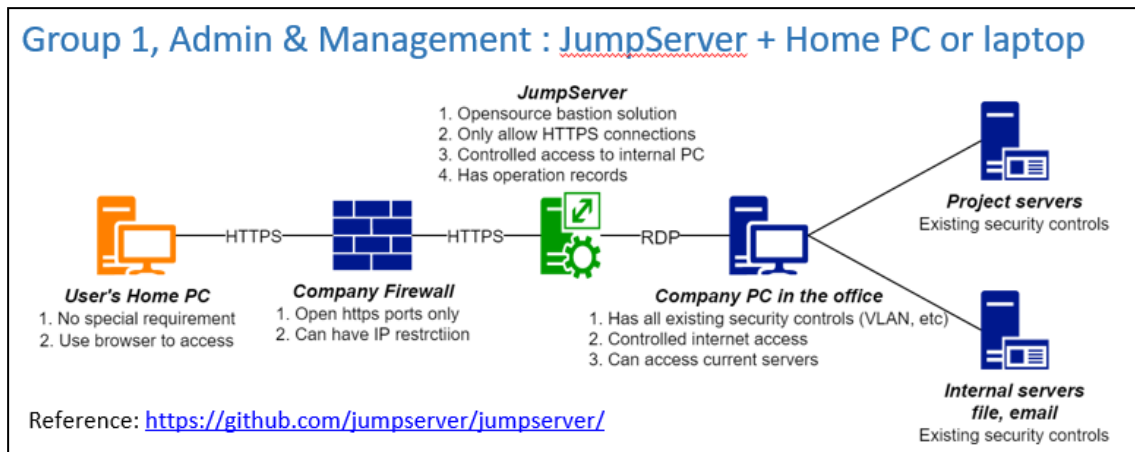
2 different secure solutions according to users' needs.

TRA05 - REMOTE WORK

NAME	INNOVATOR
Teams working in shifts	**Virtuos**

The developer divided the staff of the largest studio into 2 teams with staggered schedules to reduce the number of people in the offices at any one time. To its surprise, productivity increased by around 10% compared to the pre-virus period while the time employees were present reduced by around an hour on average.

PUB01 - PUBLIC SERVICES / JUSTICE / SECURITY / TAXES

NAME	INNOVATOR
Online court	

While cities were on lockdown, Chinese courts also had to adapt quickly to the need to conduct their business online, and China has adopted technological solutions for ongoing legal cases.

The necessary technology was already in place. China set up its first online court in Hangzhou in August 2017, and then in Beijing and Guangzhou in September 2018.

Examples of the process in action: a local court judge, "dressed in a gown and facing the screen", conducted a criminal hearing without any of the parties being physically present. The case concerned a violation of the rules for the prevention and control of epidemics. " *At the end of the legal proceedings, the accused was sentenced to nine months in prison,*" the report said.

In another case, a judge from Beijing's No. 1 Intermediate People's Court used an online video communications system called Yunshenpan, which literally means "trial in the cloud", for a hearing on a private loan dispute. Judge Chen Shi said that the use of the application "*not only met the litigation requests from both parties, but also kept them safe and well during the epidemic period* ".

The Supreme People's Court of China has also encouraged the use of the "mobile micro-court" on WeChat in 12 provinces and cities to help courts conduct trials over the Internet.

The "mobile micro-court" on WeChat provides defender and defendant facial recognition services, online case processing, online mediation, trial via video and downloading of evidence online. The parties can open the case online, file documents, mediate, and conduct the trial, as well as perform other functions.

Source: https://www.thelawyer.com/coronavirus-and-the-courts-a-boost-for-online-reform/

Example for the courts of Hubei: the website of the Hubei Litigation Service divides Hubei according to its districts and the courts of each district and make it possible to download an application to set up a case, transmit the procedural documents to the court, communicate with the judges and registrars, etc.

Example of online audience.

PUB02 - PUBLIC SERVICES / JUSTICE / SECURITY / TAXES

NAME	INNOVATOR
Connected police helmets	**KuangChi Technology**

KuangChi Technology uses helmets with integrated artificial intelligence technology to help police and epidemiological units detect COVID-19 cases.

These headsets are made of extremely light equipment and equipped with cameras, augmented reality glasses, wifi, Bluetooth and 5G.

These helmets make it possible to measure the temperature, and perform facial recognition, in order to identify citizens with a fever.

PUB03 - PUBLIC SERVICES / JUSTICE / SECURITY / TAXES

NAME	INNOVATOR
"Contactless" tax returns	**KuangChi Technology**

Local governments in China have set up mini-Apps and websites to carry out tax formalities (declarations, payment of taxes, payment of social security contributions, request for invoices, etc.) online without having to go to the tax bureau, so as to limit contact between people during this epidemic period.

For example, Hubei province has created the Hubei Electronic Taxation Bureau, which can be accessed via the internet or via a Wechat account.

WeChat account home page.
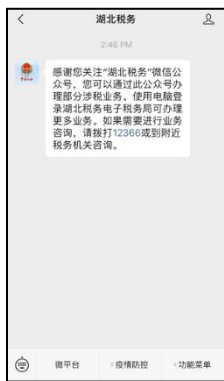
Subject description of the WeChat account: "*Thank you for your interest in the "Hubei Taxation" WeChat public account. You can use this public account to manage certain tax related matters. Use your computer to connect to the Hubei Tax Electronic Taxation Bureau for more services If you need a business consultation, please call 12366 or consult the nearest tax office*."

Description of the functionalities and access methods

FIN01 - FINTECH / BANKING / INSURANCE

NAME	INNOVATOR
Adaptation of the banking sector to the COVID-19 crisis	**Société Générale**

Banking falls into the category of "essential" activities and is extremely regulated. Therefore, banks are subject to special obligations, particularly with regards to "business continuity".

In this regard, the COVID-19 crisis and the obligation to implement mass remote working for several weeks were a major test of the level of preparation of banks and their flexibility to activate their business continuity plan. If banks are sufficiently prepared, have set up a business continuity plan and have previously "rehearsed" the actions to be implemented in the event of a crisis, the response provided during a crisis period is effective and simple. The way in which a bank can react is intrinsically linked to how prepared it is.

Regarding market activities, the crisis has made it possible to successfully test, from an operational security and compliance point of view, "trading from home". The crisis sped up the implementation of these types of operations and demonstrated that they could be carried out under acceptable security conditions.

Other important points concerning the tools used: significant investments in "broadband", Virtual Private Networks (VPN) and backup sites.

Finally, this crisis will lead in the medium term to more thinking on the digitalization of paper processes (including systematic document stamping in China) and the securing of transactions using blockchain or other means.

FIN02 - FINTECH / BANKING / INSURANCE

NAME	INNOVATOR
Tracking of donations	**Hyperchain**

Hyperchain is a start-up in the blockchain activity.

Following various COVID-19 related scandals affecting traditional charities, Hyperchain and China Xiong'an Group have developed a blockchain donation tracking platform with the aim of improving transparency and effectiveness of donations. This platform monitors each stage of the donation (money or masks and other medical equipment), verifies that the donation meets the needs of the designated areas and ensures that it reaches its final destination.

Sources:

https://www.scmp.com/tech/blockchain/article/3050461/china-start-launches-blockchain-based-platform-improve-donation

https://www.the-blockchain.com/2020/02/06/chinas-hyperchain-plans-to-take-on-coronavirus-with-blockchain-fueled-donation-platform/

FIN03 - FINTECH / BANKING / INSURANCE

NAME	INNOVATOR
Acceleration of insurance declaration processes	**Blue cross**

Blue Cross (Asia-Pacific) Insurance is a Hong Kong insurance company, and a subsidiary of Bank of East Asia (BEA).

During the COVID-19 crisis, it used blockchain technology to help ease the pressure on health services. Its technology is able to speed up the time-consuming processes of verifying data and paper documents submitted to hospitals for insurance declaration. The platform can automatically process more than 1,000 transactions in just one second. This helps medical and support staff to limit the time spent on administrative tasks, and reassign medical duties to medical staff, who are already in short supply.

Sources:

https://www.insurancebusinessmag.com/asia/news/technology/insurers-look-to-blockchain-to-fasttrack-coronavirus-claims-213342.aspx

https://finance.yahoo.com/news/chinese-insurers-tap-blockchain-speed-090000848.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAGCOMdJ5-JgV5cHhcMVW_sANpb8KOMZnyNpzvdI5LfIaTNoDPCrYU4dtgbDdY9ULP3z8ZIC6FMTmxqUdMV-L3psUemCD9tgv2NMtpw2SPYW8C7amvQfLzd_qON5fxNDiWv4FpjvHZu3jx9Hem6LRd4rPG9ihrieKyl928X0iL6rS

FIN04 - FINTECH / BANKING / INSURANCE

NAME	INNOVATOR
Addition of COVID-19 to the list of diseases eligible for payment of compensation	**Xiang Hu Bao**

Xiang Hu Bao is an online platform owned by Ant Financial, a subsidiary of Alibaba.
It added COVID-19 to its list of diseases eligible for payment of compensation up to
100,000 CNY (14,300 USD).

The product offered is not insurance but a collective claim-sharing mechanism that uses blockchain technology to offer basic health plans to 104 million users, many of whom come from the Chinese countryside. Xiang Hu Bao uses its blockchain network to speed up the settlement of claims and avoid fraud. Claimants can submit their supporting documents as evidence while investigative companies can access them immediately on the blockchain. All parties involved can view the entire process.
The Chinese government will bear all medical expenses related to the COVID-19 epidemic, so the payment from Xiang Hu Bao can be used to cover other expenses, such as loss of livelihood and improvement of hygiene at home.

Sources:

https://www.insurancebusinessmag.com/asia/news/technology/insurers-look-to-blockchain-to-fasttrack-coronavirus-claims-213342.aspx

https://blockchain.news/analysis/insurance-firms-in-china-and-hong-kong-count-on-blockchain-to-fast-track-wuhan-coronavirus-claims-amid-outbreak

HOT01 - HOSPITALITY

NAME	INNOVATOR
Mobile canteen	**City of Xiamen**

"Mobile canteen" offers "safe" group meals to companies that have resumed their activities.

Mobile canteen is a group meal supply platform that was launched by the Commercial Affairs Office in the city of Xiamen, during the COVID-19 crisis, by teaming up with around ten registered restaurants and two major delivery platforms: Eleme and Meituan Dianping. The objective is to deliver "safe" meals to companies that have resumed their activities.

The menu and payment method can be decided by the restaurants, delivery platforms and companies. The price per meal is between 10 and 40 CNY.
The production and delivery processes are controlled by the platform.

"Mobile Canteen" can help companies solve the problem of providing safe meals for their employees, and at the same time bring extra business to restaurants and delivery platforms during the COVID-19 crisis.

Source: <u>https://www.sohu.com/a/375313609_411863</u>

HOT02 - HOSPITALITY

NAME	INNOVATOR
Safe Working Lunch	**Sherpas**

"Safe Working Lunch" was launched in Shanghai by Sherpas in collaboration with several restaurants. Sherpas is one of the renowned meal delivery platforms in Shanghai, Beijing and Shenzhen. Unlike Eleme and Meituan Dianping, Sherpas specializes in providing services to foreign nationals.

As activities resume, many entrepreneurs are faced with a difficult question: how to ensure a safe meal environment for their employees during the COVID-19 crisis.

With a high demand for food safely prepared in controlled locations, combined with a reliable delivery service, Sherpas works with many restaurants to deliver business lunches to companies such as AB InBev and Little Sheep.

HOT03 - HOSPITALITY

NAME	INNOVATOR
"Contactless" hotel services	**Flyzoo Hotel**

In order to keep customers safe and healthy and reduce operational costs during the COVID-19 crisis, and with the help of artificial intelligence, FlyZoo Hotel provides customers with a set of "Contactless" services, from check-in until invoicing, including the departure procedure and facial recognition-enabled elevators, meal delivery by robot, self-service invoicing, etc.

"Contactless" Billing machine

:

Food delivery robot.

Other hotel groups such as BTG Homeinns, HUAZHU and DOSSEN are upgrading their customer service systems one after the other by introducing artificial intelligence to offer a "contactless" service to customers.

Check-in / out machine with facial recognition located in a Huazhu group hotel.

Source: https://baijiahao.baidu.com/s?id=1660211854323390489&wfr=spider&for=pc

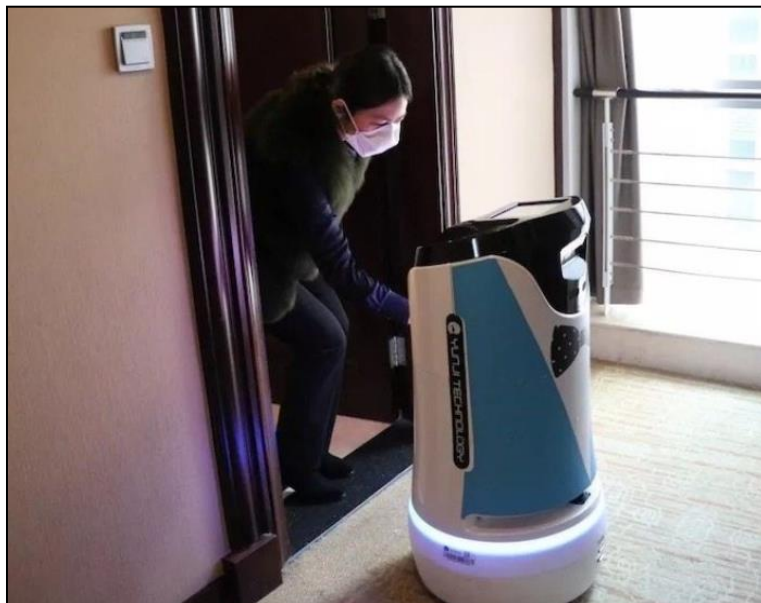# HOT04 - HOSPITALITY

NAME	INNOVATOR
Robot nurses in hotels used for quarantine	

Robotic nurses have been providing services to people quarantined at Gaosu Nem Century International Hotel in Anhui.

During the COVID-19 crisis, several hotels were transformed into quarantine centers. Gaosu Nem Century International Hotel has one of its requisitioned hotels in Anhui Province.

To minimize human contact, and save on human resources and protective devices, these hotels use robots to deliver medicine, meals and other anti-epidemic items needed by quarantined people.

Source: http://www.aiimku.com/news/show.php?itemid=471

HOT05 - HOSPITALITY

NAME	INNOVATOR
Contactless meal delivery	**Meituan Dianping**

Meituan Dianping is a Chinese company specializing in online sales. It initially specialized in online sales and group purchasing, but it then diversified into the delivery of meals and groceries and became one of the largest delivery platforms, the other being Eleme.

To help restaurants restore a decent level of turnover as quickly as possible, Meituan Dianping has developed a contactless solution that covers the entire supply chain in the restaurant industry.
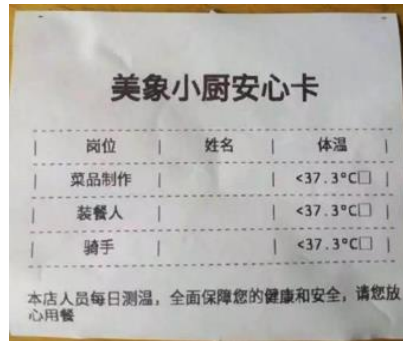
Contactless delivery:

Implementation of smart insulated boxes to optimize the contactless meal delivery service:

An Xin Ticket (安心 卡) is a Health document which shows consumers the name and temperature of the people who prepared the dish and performed the delivery:

An Xin Ticket (安心卡) on the app:

The order is made via a QR code and without needing to enter the restaurant. The meal can be picked up at the self-service counter:

How the contactless system works in a restaurant for customers who wish to pick up their meals themselves:


Here is an example of the An Xin card for restaurants that buy ingredients on 'Kuai Lv (快 驴 进货)', a B2B purchasing platform developed by Meituan Dianping.

On the card, the date, names and temperatures of the people who packed the products and the deliverers are mentioned in order to maintain traceability:

Source: https://tech.sina.com.cn/roll/2020-02-14/doc-iimxxstf1433921.shtml
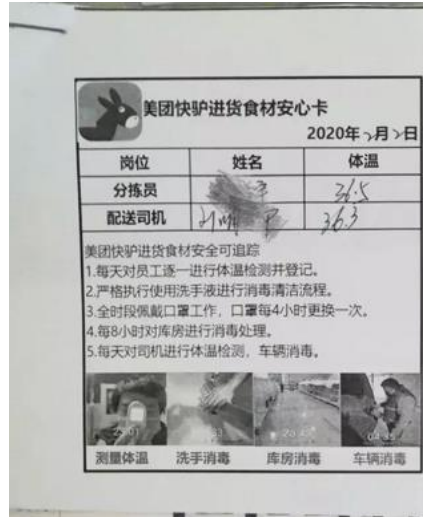
HOT06 - HOSPITALITY

NAME	INNOVATOR
"Contactless" restaurants	**Meituan**

By applying the contactless service solution developed by Meituan, many restaurants are transformed into contactless restaurants where customers can order, collect and pay for their meals by scanning a QR code.

Source: https://tech.sina.com.cn/roll/2020-02-28/doc-iimxyqvz6431682.shtml

HOT07 - HOSPITALITY

NAME	INNOVATOR
Delivery Robots	**Eleme**

Eleme is one of the largest online meal delivery platforms. They sent delivery robots to quarantined areas to deliver meals and groceries with the aim of reducing the risk of COVID-19 infection.

The robot 'Chi Tu (赤 兔)', was put into service in a quarantined area in Wenzhou:

Source: https://baijiahao.baidu.com/s?id=1657875877958868685&wfr=spider&for=pc

HOT08 - HOSPITALITY

NAME	INNOVATOR
Delivery robots in hospitals	**Keenon Robotics**

Autonomous robots have been delivering medicine and food to quarantined patients. This minimizes interactions between nurses and patients.

Food delivery robots have been deployed in hospitals and quarantined areas in more than 40 cities. These robots relieve stress from hospital workers while protecting them from infection.

Robots used for delivering medicines and / or meals to patients and hospital workers in quarantined areas.

HOT09 - HOSPITALITY

NAME	INNOVATOR
Luckin Coffee contactless dispensers	**Luckin Coffee**

Luckin Coffee is a chain of Chinese coffee shops specializing in delivery and known for its 'stripped-down' operations model. Most of its stores are small collection points located in office buildings which are used for the collection and delivery of orders that have been placed solely online through its mobile app.

The drink dispenser is a concept that has been around for a long time in Europe but is still not very common in China.

With the arrival of the COVID-19 crisis, Luckin Coffee established "Luckin coffee EXPRESS" coffee vending machines in hospitals in Wuhan to offer "contactless" coffee to doctors.

"Luckin coffee EXPRESS" receives orders via its mobile app. The entire coffee production process is contactless.

Source: http://hebei.ifeng.com/a/20200221/8371076_0.shtml

HOT10 - HOSPITALITY

NAME	INNOVATOR
Shared employees	**Freshippo**

Freshippo Supermarket is a new retail concept platform owned by the Alibaba Group.
With the impact of COVID-19, Freshippo was facing a severe labor shortage and in early February entered into an employee time-sharing collaboration with restaurants that were forced to close so that employees of these restaurants could work at Freshippo until things returned to normal.
As of February 14, more than 40 restaurants had signed an agreement with Freshippo and sent 2,700 "shared employees" to work at Freshippo.

Source: https://tech.sina.com.cn/roll/2020-02-18/doc-iimxyqvz3772440.shtml

LOI01 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Shanghai Museum on your mobile	**Shanghai Museum**

Shanghai Museum is making its content available in "mobile" format to make it more accessible to the general public.

For several years, Shanghai Museum has been developing digital solutions for its exhibitions, which were already available online to the public. Faced with the closure during the epidemic crisis, the museum converted some of this content to "mobile" format to make it more widely accessible. By scanning a QR code either on WeChat or certain other applications, the public can access 18 3D exhibitions, 25 lessons, 3 online exhibitions and 5 presentations from the museum's collection.

Content is accessed by scanning a QR code.

Example of exhibitions accessible in 3D.

During this period, the museum has continued its programming of online courses via a mini streaming program integrated into WeChat. This training course costs 129.9 CNY, and can be shared with 2 other people (which would amount to 39.9 CNY per person).

Paid online courses.

LOI02 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
UCCA Sonic Cure	**UCCA, Kuaishou**

The Beijing Museum of Contemporary Art (UCCA), one of the largest in China, had to close the Voluntary Garden exhibition - a multimedia artistic project focusing on music and sound that was scheduled between December 12, 2019 and March 3, 2020. As an extension of this exhibition after its premature closure, UCCA collaborated with the Kuaishou platform to broadcast a concert of 9 musicians from different musical backgrounds and generations. The artists, who live in Beijing, Shanghai, Hefei, Boston and New York, all took part in an online streaming session, creating an improvised musical jam, broadcasting live via the Kuaishou app to a worldwide audience.

UCCA created its account on Kuaishou in February 2020, specifically for this concert which lasted 4 hours, and garnered more than 3 million views and over a million likes.

UCCA Kuaishou account page.

Concert page.


Replay page of part of the concert.

The artists.

LOI03 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Icouncil	**BCIA**

Beijing Council International Auction organized a charity auction through a WeChat mini-program.

The Beijing auction house Council organized a digital auction by developing a WeChat mini-program and application for the benefit of the Beijing United Charity Foundation, which took place on February 14 and 15, 2020. The iCouncil 收藏 在线 application was created in January 2018 and the iCouncil 收藏 在线 mini-program was launched in October 2019. So although this relates to the use of already existing platforms, this specific auction entitled "Life is priceless and art is powerful " 生活 无价，艺术 有力 was specially organized to help hospitals in Wuhan. Eighty-eight artists donated works, raising a grand total of 1,337,000 CNY.
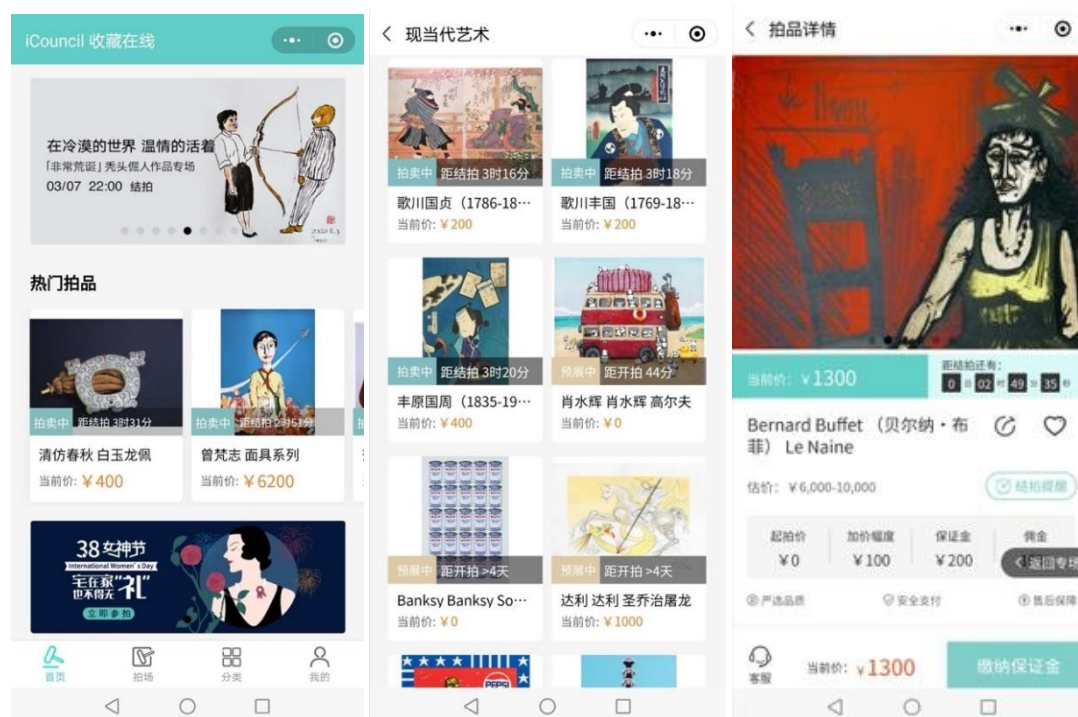
Home page.

Catalogue page for modern and contemporary art.

Example of a lot for sale.

LOI04 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
How Museum - Stand Together	**BCIA**

How Art Museum - Charity auction.

The Shanghai-based How Museum held an auction to raise funds for primary school children and women who, as nurses, are at the forefront of the fight against the virus. All funds will be donated to the Shanghai Song Ching Ling Foundation, an organization dedicated to the protection of women and children for the last 30 years.

The Stand Together 风雨同舟 sale took place on March 4 and 5 on the Yitiao platform (21 million subscribers on WeChat).
This is an example of collaboration across different industries between museums, media, cultural institutions and online platforms. The event benefited from major advertising and publicity thanks to its collaboration with the communication giant Modern Media.

QR code for auction access on Yitiao.

Home page.

List of lots for sale.

Example of a lot for sale.

LOI05 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Suzhou Museum mini-program	**Suzhou Museum**

Between September and December, the Suzhou museum organized the exhibition "The screen painted yesterday and today", around which mediation tools were set up such as a 360 degree visit to the museum, conferences and art history lessons all available on the museum's website and application which was created in 2019.

This exhibition, which had already finished by the start of the epidemic, was then the source of another initiative: a puzzle-type game inspired by a screen in the exhibition, and made available online. The screen displays certain measures taken in public places to curb the epidemic, such as screens in hospitals to isolate the sick. When the epidemic hit, the museum widely promoted all of its digital tools to visitors stuck at home.

Home page.

Puzzle game page.

Online conferences.

LOI06 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Online tourism	**Taobao Live**

Live broadcast tour of tourist and cultural sites on Taobao Live

With the closure of all tourist and cultural spots since the outbreak of the COVID-19 crisis, new digital media has enabled these places to become better known and generate income. Since February 23, Alibaba has been offering a live tour of tourist sites on its Taobao purchasing platform. Known as 一起 云 春游 (which could be translated as "Spring Travel Online") this is a new module which was created during the epidemic.

8 Chinese museums participated in the first series, which took place on February 23 over one day. Beginning at a scheduled time, each live broadcast lasts between 1 hour 30 minutes and 3 hours. About 10 million people participated in these broadcasts throughout the day. For some museums, the number of views equated to almost half the number of visitors they can receive in a whole year. For example, the Gansu museum obtained 900,000 views and 500,000 "likes". It is also possible to interact during these live broadcasts by posting comments. Plus, we can vote on the attractions that interest us the most. Products relating to the museums are on sale during the live broadcast, generating income for the participating locations. Following the success of this first series devoted to museums and their collections, other series with, for example, visits to the Panda Base in Chengdu and the Potala Palace in Lhasa followed.

You can watch the recorded broadcasts on line, but what audiences find particularly interesting is the interaction during the live broadcast, where viewers can ask questions to the guides or enter competitions to win gifts (by answering questions about the museum or the collection).

Live broadcast page.

Products on sale during the live broadcast.

Guided tour of the Gansu museum.

LOI07 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Free game	**NetEase**

NetEase provided the free game "Justice", featuring a character wearing a mask.

Publisher Netease allowed players to play its game "逆水 寒" (Justice) for free and created a character wearing a mask. Their goal was to help entertain players who are encouraged or required to stay at home.

LOI08 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Free "Overwatch" Game	**Blizzard**

The game publisher Activision / Blizzard and its partner Netease made their Overwatch game free to play during the extended holidays.

Free access to Overwatch until February 10.

NAME	INNOVATOR
Free " Eastward Legend" video game	**Kingsoft**

Game publisher Kingsoft made its game "Eastward Legend" free until February 24.

LOI10 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
New game based on the fight against COVID-19	**Ace game**

Smartphone game developer Ace Game developed the game, "Ni Xing Zhe" (ie those who don't follow the crowd), a popular little game depicting the various players in the fight against COVID- 19.

"Ni Xing Zhe" mobile game.

LOI11 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Free Movie Streaming	**Bytedance**

Online entertainment platform Bytedance purchased the copyright to the movie "Lost in Russia" for CNY 700 million. It was due to be broadcast in cinemas during the Chinese New Year, but Bytedance streamed it for free instead. The movie reached 180 million views in the first 3 days. Bytedance has thus demonstrated the strength of its platform and has boosted its capacity to become the Chinese Netflix.

LOI12 - LEISURE / GAMING / CULTURE / SPORTS

NAME	INNOVATOR
Broadcast of free films from Hubei	**Tencent**

People with IP addresses in Hubei can watch movies and TV series on Tencent Video for free.

"Enter the Fat Dragon" made available free of charge on Tencent Video.

EDU01 - EDUCATION

NAME	INNOVATOR
Air Classes	Shanghai Education Commission (Government)

To enable students in public schools to continue their studies at home while schools are closed due to COVID-19, the Shanghai Education Commission launched "Air Classes" on 2 March 2020. This was a first in China, because it was necessary for all primary and secondary students to have access to remote learning at the same time. More than 1,000 20-minute sessions have been recorded for broadcast by television or internet platforms to 1.4 million students. At the end of each of these broadcasts, 120,000 teachers are available for 20 minutes for a discussion. 5-6 classes have been organized for students from Monday to Friday.

Curriculum: Classes from primary to final year of high school, covering the programs of the second semester of the 2019/20 school year.

Channels: 12 channels corresponding to the 12 levels are available.

4 possible access channels:

✓ Mobile or iPad (Tencent iClass, Dingding…)
✓ TV or IPTV
✓ Application (BesTV, Tencent Class ...)
✓ Website -> https://www.bilibili.com/blackboard/activity-RdWlxTTo.html

China Mobile, China Unicom and China Telecom have also created platforms to enable access to online classes.

Demonstration page of an "Air Class" online.

A student attends a TV lesson and prepares for the discussion that follows.

A student corrects his homework based on his teacher's comments on an iPad.

Each week, there are 380 broadcasts: 159 for primary school students, 123 for middle school students and 98 for high school students. The classes cover the entire program. Eye rest exercises and keep-fit classes are also offered.

Schools have trained their teachers to organize discussion sessions after each broadcast. The course content is sent beforehand in paper and digital format to each student.

Schools lend, insofar as possible, computer equipment to pupils who require it.

According to the Education Commission, more than 1,000 teachers have participated in the development of these classes, in the space of just a few weeks.

Sources:

https://www.shine.cn/education/2003134209/

https://www.shine.cn/news/metro/2003023280/

http://sh.bendibao.com/news/2020224/217371.shtm

EDU02 - EDUCATION

NAME	INNOVATOR
Remote programming workshops	**Netspring**

Netspring is a social enterprise that promotes the circular economy and the reuse of obsolete computers for the digital inclusion of disadvantaged schools, especially migrant schools. These are mainly funded by parents, with little government support. During the health crisis, many teachers from migrant schools had returned home for the Lunar New Year, physically far from their place of work. To allow teachers to continue to train at home in an original way despite the crisis, Netspring offers remote workshops to certain teachers, with a view to acquiring notions of algorithmics, in particular through fun software intended for children developed by MIT medialab.

A teacher attends an interactive workshop at home.

Source: Interview with a teacher from the Jiashan School of Migrants (March 18, 2020)

EDU03 - EDUCATION

NAME	INNOVATOR
I-class program	**Tongji University**

Tongji University used the COVID-19 crisis as an opportunity to question and explore new ways of teaching and learning that could continue beyond the crisis and face future new challenges.

On March 2, 2020, the university officially launched its "iClass" program. On that day, 856 interactive classes were taught to more than 30,000 students by more than 3,000 online teachers.
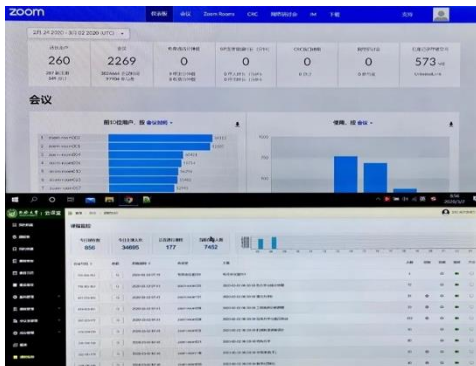
Tongji's "iClass" platform was developed with the ZOOM cloud meeting system (http://courses.tongji.edu.cn) and the open source software Canvas (http://canvas.tongji.edu.cn).
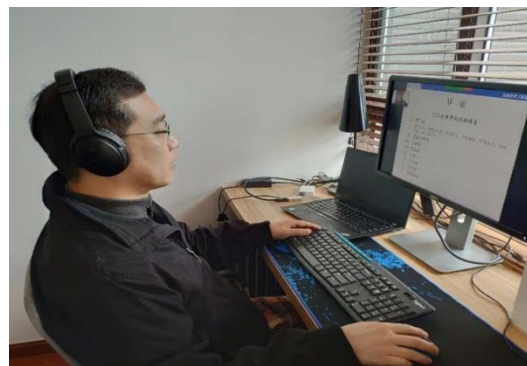

"IClass" access page.

Demo of an "iClass" course.

"IClass" statistical data.

A student attending an "iClass".

"Thanks to the university's information service and the IT teams, we built this educational platform in two weeks, as well as conducted training sessions. This platform works very well and ZOOM makes it possible to almost replicate a real class. After a few days of using it, students feel very at ease with it", Quote from a professor

Source: https://www.thepaper.cn/newsDetail_forward_6285322

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EDU04 - EDUCATION

NAME	INNOVATOR
Mixing video and online lessons	**Shanghai Tech University**

Shanghai Tech University's response to the COVID-19 crisis has been a mix of pre-recorded video classes (75%) and interactive online classes. Teachers can choose between several platforms such as ZOOM, WeChat, Tencent...

Source: http://www.shanghaitech.edu.cn/2020/0317/c1001a50545/page.htm

EDU05 - EDUCATION

NAME	INNOVATOR
Digital toolbox	**New York University, Shanghai**

The Shanghai campus of New York University has developed a remote learning platform for itself, but one which can also be deployed in other universities. Since February 17, 2020, 300 classes have been conducted using digital technology by adapting certain technologies such as Zoom, Voice Thread or Kultura.

Source: https://shanghai.nyu.edu/news/nyu-shanghai-makes-digital-toolkit-available-fellow-universities-going-online