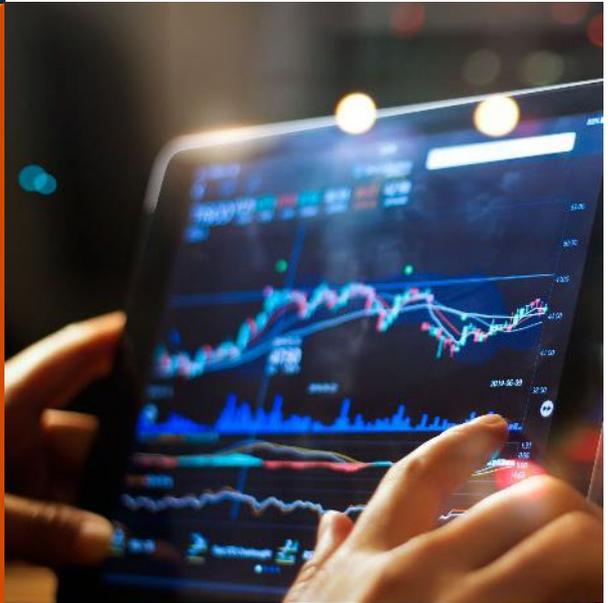


China Economic Quarterly Q2/Q3 2020

Amidst COVID-19, what's next for China's
digital economy?





On 14 July, China's National Development and Reform Commission (NDRC) together with 12 central government departments, released a guideline to support the digital economy. The digital economy has emerged as one of the key forces driving China's economic development in the past few years. Particularly amidst COVID-19, the digital economy played an essential role during city-wide lockdowns. People's lifestyles and work habits as well as business models have been significantly altered and are very likely to stay that way in a post-pandemic era.

COVID-19 has accelerated the fourth industrial revolution or digital revolution. As described a few years ago by Dr. Klaus Schwab, founder and chairman of World Economic Forum, the digital revolution is characterised by "a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres". It is disrupting nearly every industry across various countries at an exponential pace and is transforming production, management and governance systems.

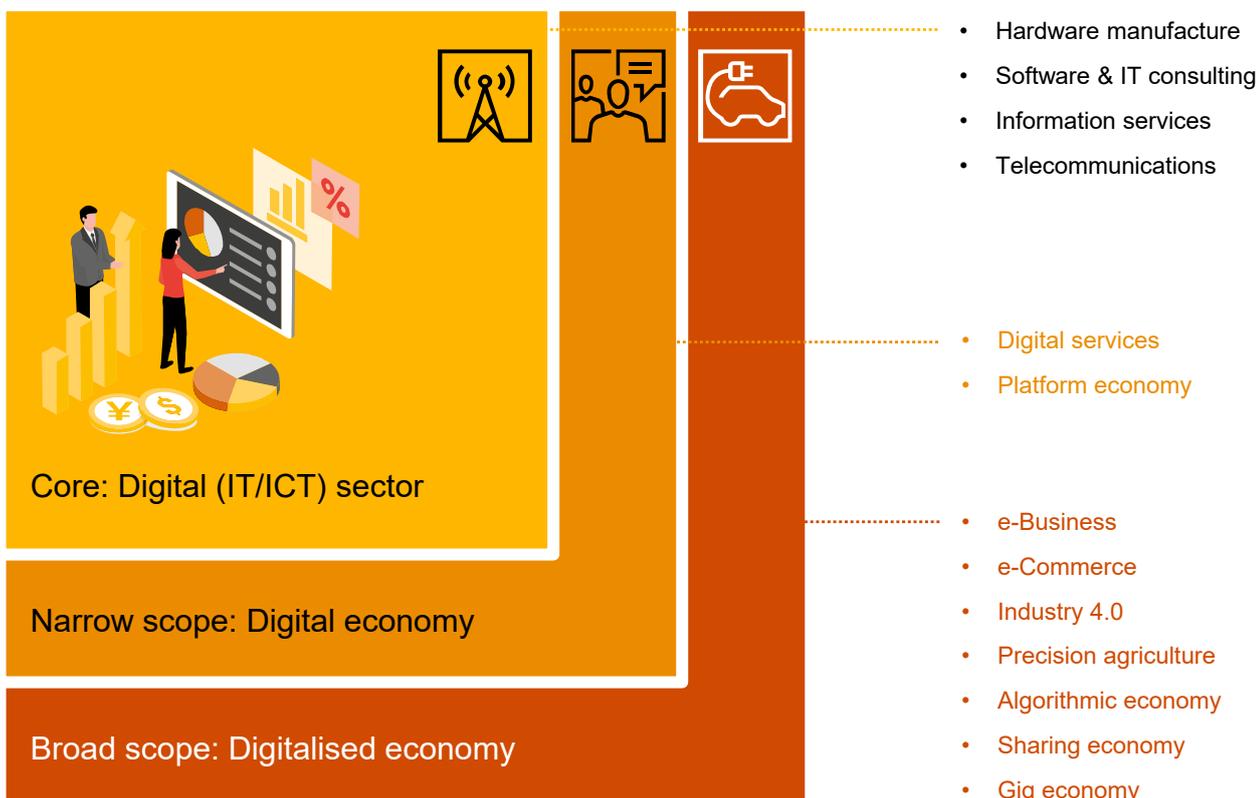
As a developing country, China was far behind in the first industrial revolution (use of steam and waterpower for production) and the second industrial revolution (use of electric power). However, the country's reform and opening up policy over more than four decades has prepared China to become one of the most advanced economies in the current digital revolution. Given the significance of the digital economy in determining long-term prosperity, China is striving to become a global leader in this digital revolution race. So, how has the digital economy impacted China's economy amidst COVID-19, and what's next?

What is the definition and scope of the digital economy?

Since the digital economy, also called the Internet economy, or web economy is still a relatively new concept, the definition and or scope might differ slightly from country to country. According to Digital Economy Report 2019 authored by United Nations Conference on Trade and Development (UNCTAD):

- The core or foundational aspects of digital economy comprise IT/ICT (information technology/information and communications technology). These include fundamental innovations (semiconductors, processors), core technologies (computers, telecommunication devices) and enabling infrastructures (Internet and telecoms networks).
- The narrow scope of digital economy includes products or services that rely on core digital technologies, such as digital services and the platform economy including mobile applications and payment services.
- The broad scope of digital economy contains digitally enabled sectors (new activities or business models that have appeared and are being changed by digital technologies), for example: e-business, e-commerce, Industry 4.0, precision agriculture, algorithmic economy, as well as the sharing economy and gig economy (both can be classified as either narrow or broad scope).

A representation of the digital economy



Source: Digital Economy Report 2019 by UNCTAD based on Bukht and Heeks, 2017

Additionally, when discussing the definition and scope of the digital economy, there are several associated frontier technologies which cannot be ignored. These include:



3D printing



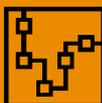
5G mobile broadband



Automation and robotics



Artificial Intelligence (AI)



Blockchain technologies



Cloud computing



Data analytics



Internet of Things (IoT)

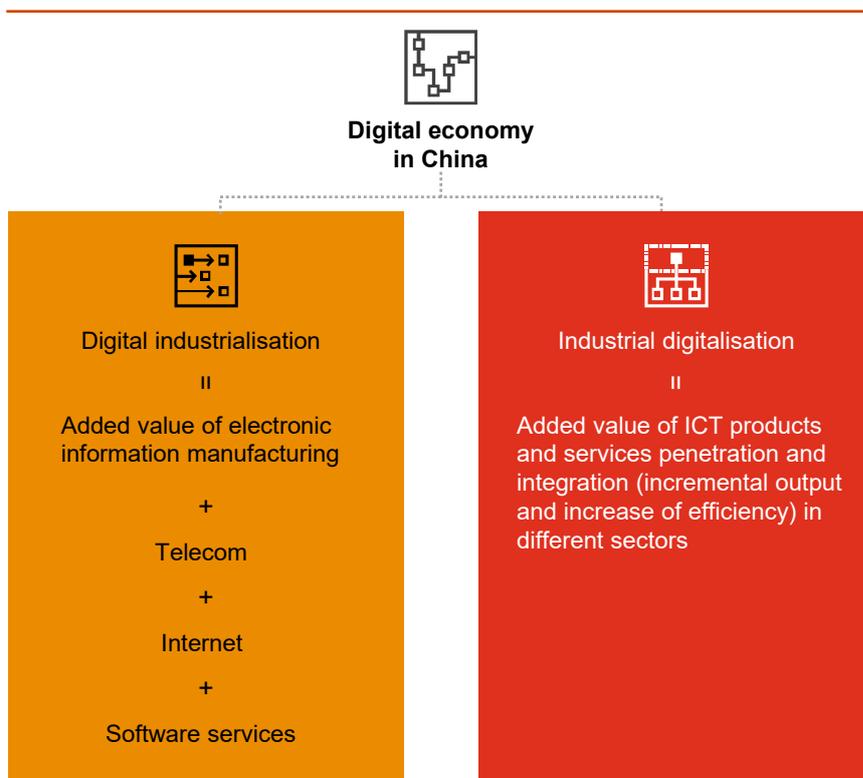


As the UNCTAD Digital Economy Report 2019 has pointed out, the evolution of the digital economy is highly related to progress in these technologies. Moreover, China already leads in terms of adopting some of these technologies. For example, China and the US have 75% of the blockchain technology patents globally and account for 75% of the cloud computing market and 50% of the global spending on IoT.

Regarding the definition and scope of the digital economy in China, it is defined as a combination of data value, digital industrialisation, industrial digitalisation, and digital governance. This definition was determined by the China Academy of Information and Communications Technology (CAICT) which is a research institute directly under the Ministry of Industry and Information Technology (MIIT).

Based on this classification, the CAICT has calculated the size of China's digital economy, including the digital industrialisation and industrial digitalisation aspects. Data value and digital governance are not included because these are very difficult to measure.

Digital industrialisation comprises the added value from electronic information manufacturing, telecom, Internet, and software services. Industrial digitalisation is calculated based on several mathematical models to obtain the added value (incremental output and increase in efficiency) of ICT products and services penetration and integration in different sectors.



Source: CAICT

The four major components of digital economy in China		
Factors of production	Forces of production	Relations of production
<p>Data valuation</p> <ul style="list-style-type: none"> • Collection and aggregation • Affirmative pricing • Marketplace • Security protection 	<p>Digital industrialisation</p> <ul style="list-style-type: none"> • Basic telecom • Electronic information manufacturing • Software and services • Internet <p>Digitalisation of industry</p> <ul style="list-style-type: none"> • Marginal contribution of digitalised agriculture • Marginal contribution of digitalised industry • Marginal contribution of digitalised services 	<p>Digital governance</p> <ul style="list-style-type: none"> • Multi-party participation • Technology and management • Digital public services

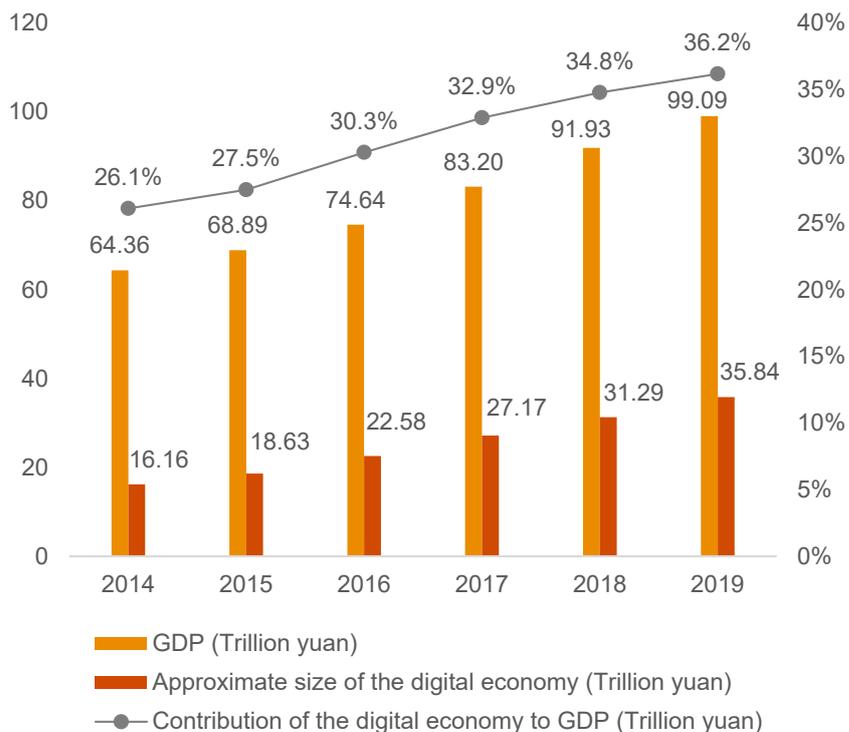
Source: CAICT

The digital economy contributed to more than 60% of China's GDP growth rate in 2019

According to the 2020 White Paper on the Development of China's Digital Economy published by the CAICT, in 2019 the digital economy contributed to around 67.7% of China's GDP growth rate. From 2014 to 2019, the digital economy's contribution to the GDP growth rate on an annual basis has consistently been greater than 50%. Moreover, China's total GDP reached 99 trillion yuan in 2019, and the size of the digital economy was around 35.8 trillion yuan which accounted for about 36% of total GDP. The growth rate of the digital economy was 15.6% in 2019 which was much higher than the GDP growth rate of 6.1% that year.

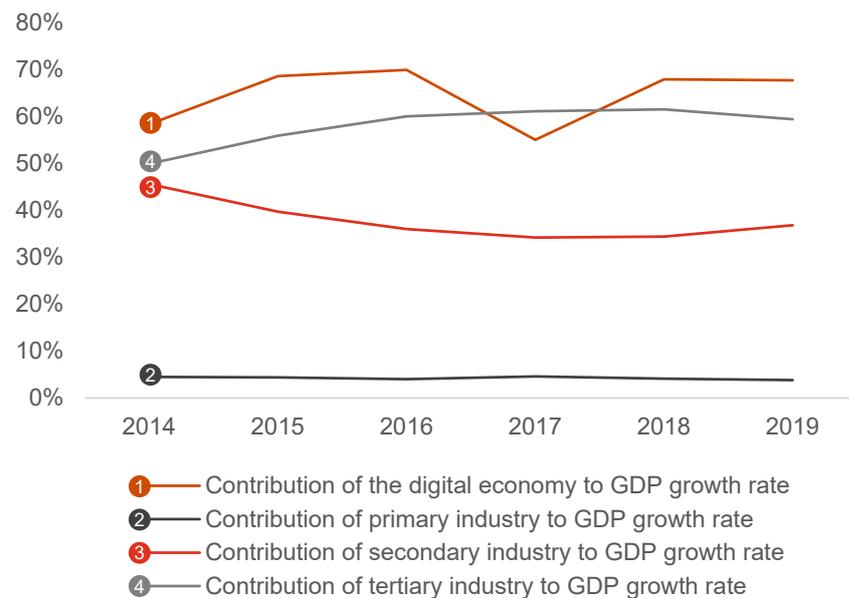
On the other hand, in 2005, the size of the digital economy was merely 2.6 trillion yuan or 14% of total GDP (18 trillion yuan). This means the size of China's digital economy grew by around 1300% over the past 15 years, while the secondary and tertiary industries grew by around 340% and 590% respectively during the same period.

Figure 12: Contribution of the digital economy to GDP in China (2014 – 2019)



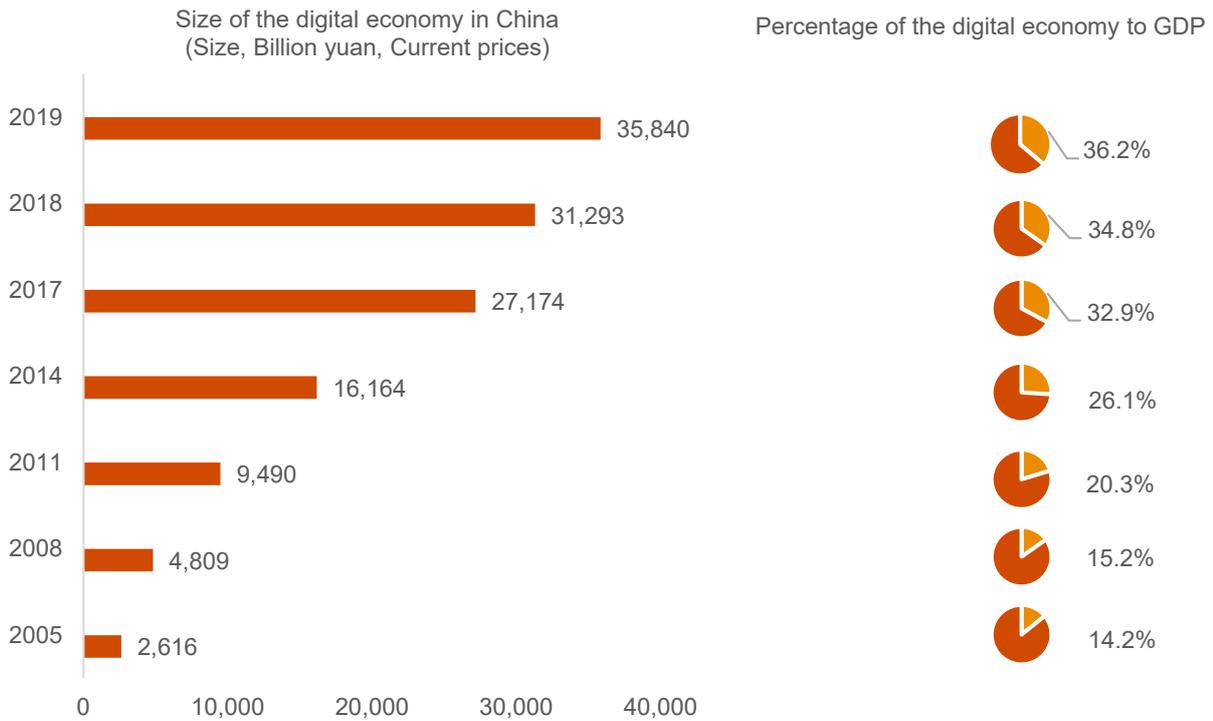
Source: CAICT, Wind

Figure 13: Contribution of the digital economy to GDP growth rate in China (2014 – 2019)



Source: CAICT, Wind

Figure 14: Size of the digital economy in China



Source: CAICT

In 2020, as a result of COVID-19, China's economic growth is expected to be much slower, however the contribution of the digital economy will continue to grow since many lifestyle and business activities have shifted to online or virtual platforms.

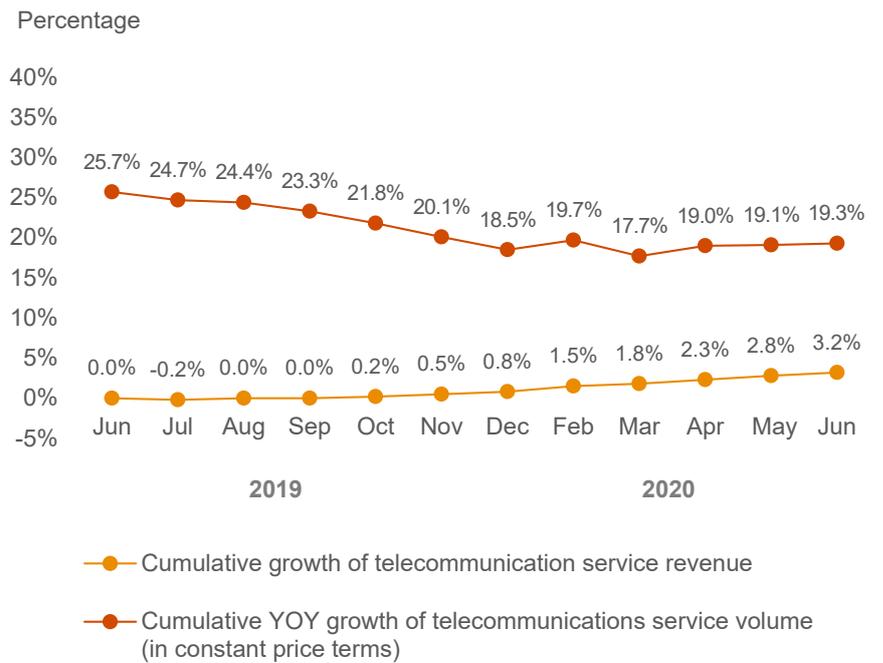


Telecommunications service volume went up by 19.3% in H1

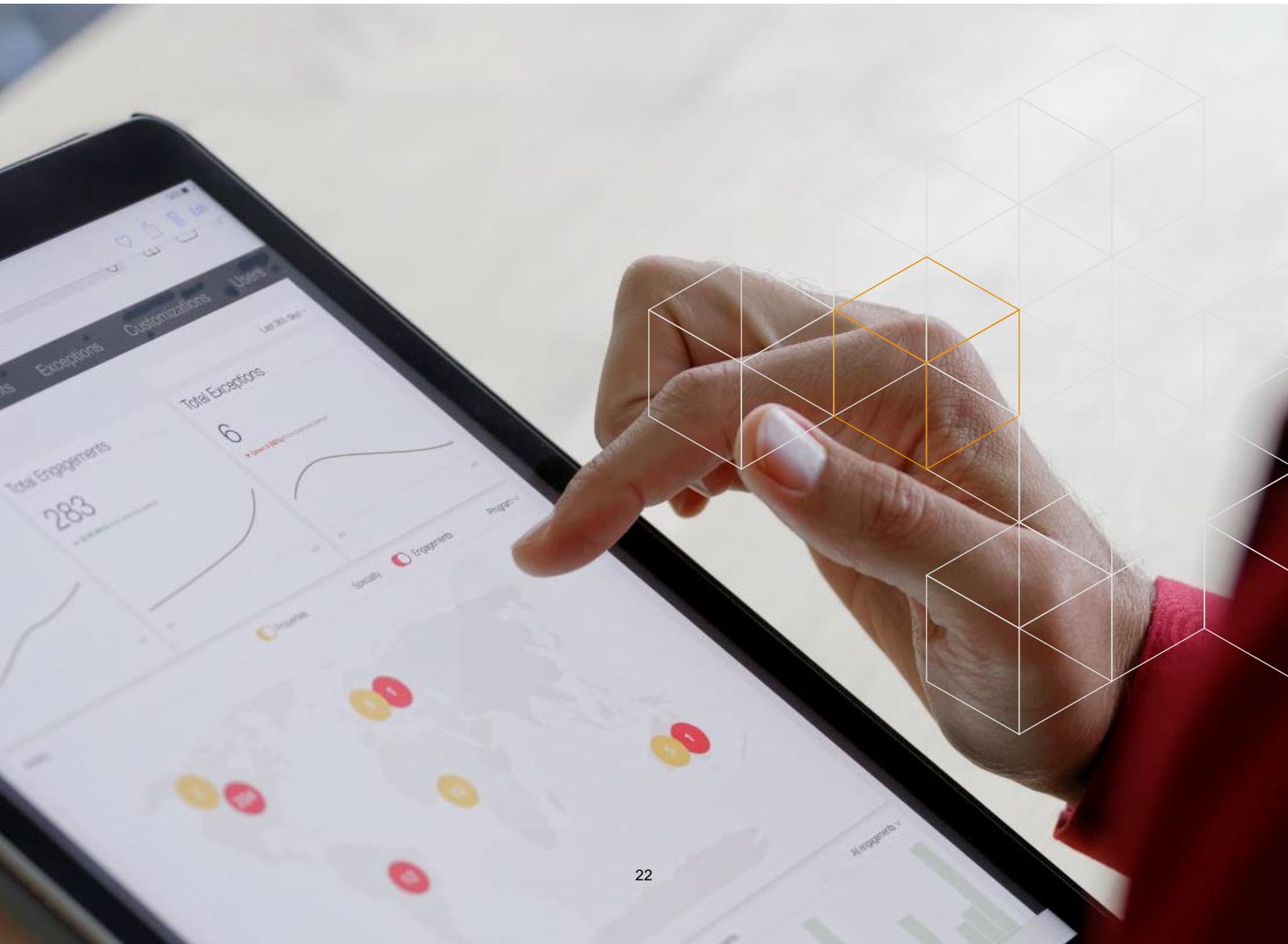
More specifically, despite the impact of COVID-19, based on data from the MIIT, services revenue generated from the telecommunications sector (one of the core aspects of the digital economy), grew by 3.2% and reached 693 billion yuan in the first half of the year 2020.

Besides, telecommunications service volume went up by 19.3% and reached 713 billion (in constant price terms, after adjusting for inflation) yuan during the same period. The growth of service volume was much higher than services revenue, because mobile users were spending more time to watch short videos and etc., meanwhile service fee did not rise simultaneously.

Figure 15: Cumulative growth rate of telecommunication services by revenue and business volume



Source: MIIT



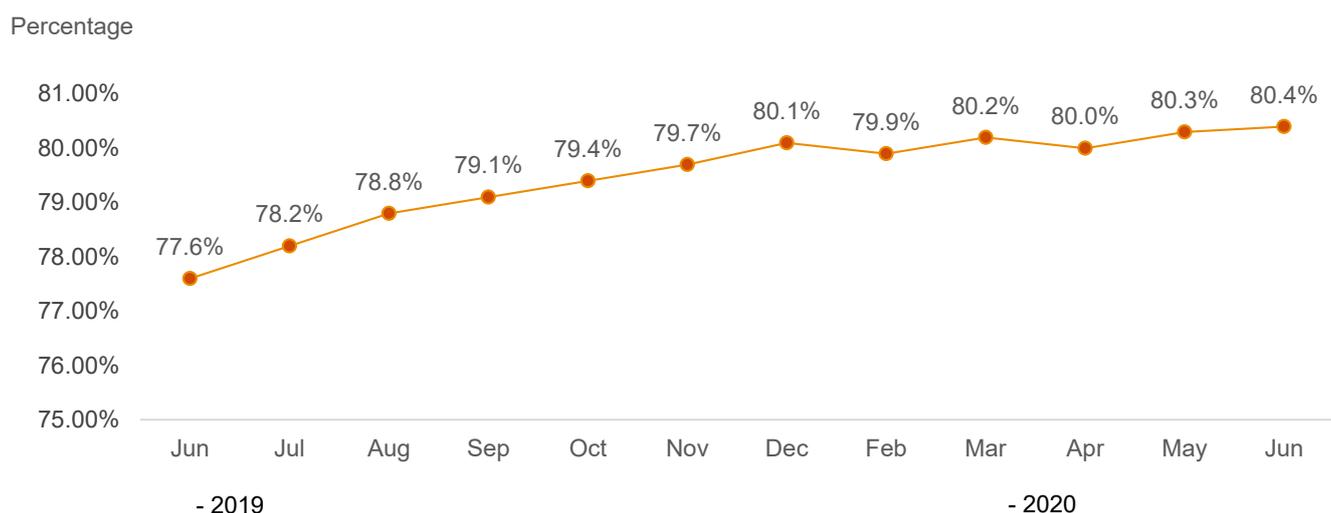
Furthermore, in terms of telecommunications revenue, the mobile business which accounts for 66% of total revenue was affected more seriously and dropped by 0.9% in the first half of the year. Meanwhile, the fixed-line business which accounts for about 34% of the total revenue, increased by 12%.

The data and Internet business (also included both in fixed-line and mobile business) had steady growth and account for 16.7% and 46% of total telecommunications revenue, respectively. They rose by 7.6% and 3.2% in the first half of the year.

Emerging businesses including Internet Protocol television (IPTV), Internet data centres, big data, cloud computing and AI have become new major growth areas for telecom revenue. These businesses account for 13% of the total revenue and their revenue has increased by 23.5% to 90 billion yuan in the first half of the year.

At the end of June 2020, the total number of mobile phone users in China reached 1.6 billion (which is more than the country's total population of around 1.4 billion) and the number increased by 0.6% in the first half of the year. Out of this more than 80% are 4G users and this number has gone up by 4.2% during the same period. It ensures a strong foundation for new mobile applications based on the 4G signal.

Figure 16: Proportion of 4G mobile users at the end of each month (June 2019 - June 2020)



Source: MIIT

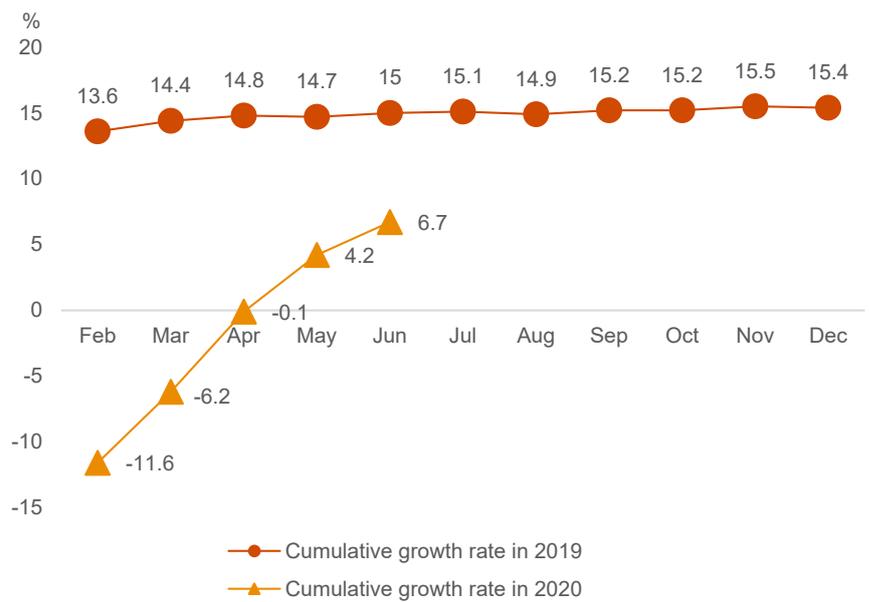


Software revenue reached 3.56 trillion yuan in H1

Revenue generated from the software sector (another core aspect of the digital economy) went up by 6.7% to 3.56 trillion yuan in the first half of the year. Due to COVID-19, the growth rate for the first half of 2020 was 8.3% less than the same period last year, however the growth rate in the second quarter of this year rose by 12.9% compared to the first quarter.

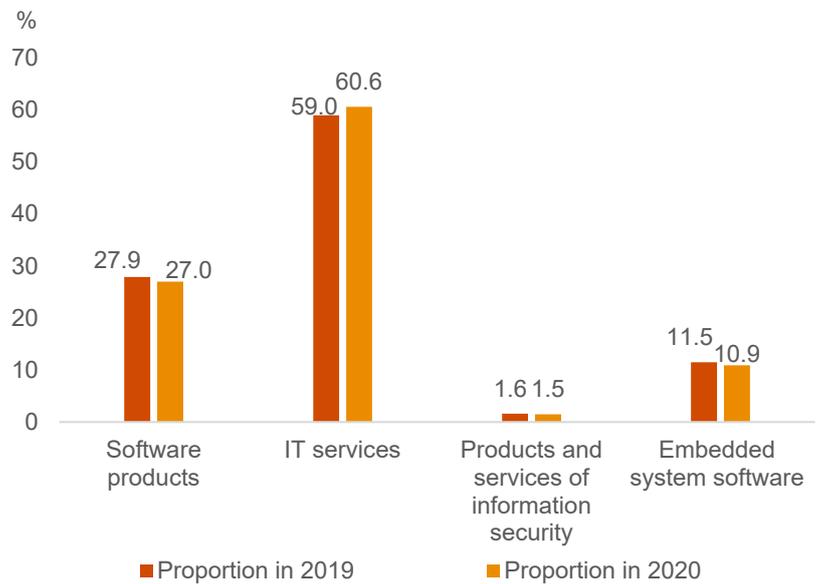
The software sector is comprised of software products (accounting for 27% of the total revenue), IT services (61%), products and services related to information security (1.5%), and embedded system software (10.9%). In the first half year, IT services had the highest growth among the four sub-sectors and grew by 9.5% to reach 2.16 trillion yuan year-on-year. Products and services related to information security declined by 2.6% compared to the same period last year. Software products and embedded system software both grew slightly by 3.3% and 1.5% to reach 962 billion and 389 billion yuan respectively.

Figure 17: Cumulative revenue growth rate of the software business (2019 – H1 2020)



Source: MIIT

Figure 18: Proportion of software industry revenue represented by different sectors (2019 – H1 2020)



Source: MIIT



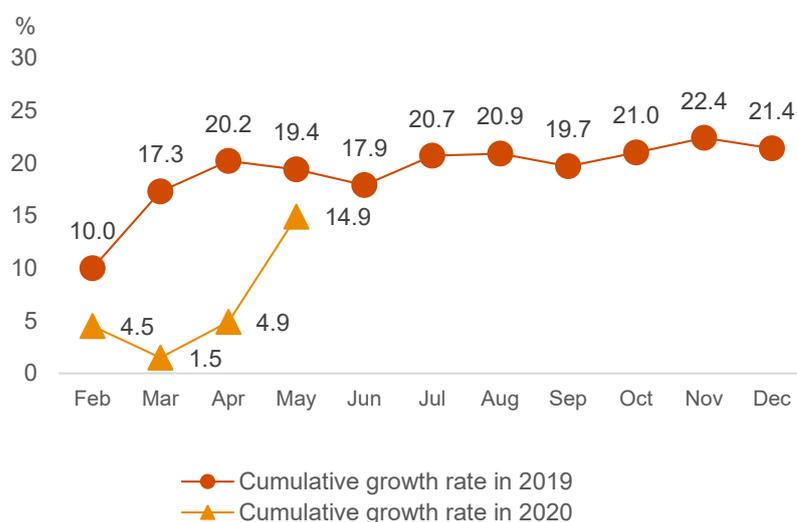
Revenue generated from the Internet sector increased by 14.9% in H1

During the first five months of this year, business revenue generated from the Internet sector (enterprises with value-added telecom business licenses) reached 472 billion yuan and went up by 14.9% year-on-year. This is much higher than the GDP growth rate however revenue growth was 4.5% lower than the same period last year as a result of COVID-19. Profits in the Internet sector also increased by 3.1% to 53 billion yuan from January to May, which is comparatively better than many other industries. As a core aspect of the digital economy, R&D expenses in the Internet sector expanded by 10% to 24 billion yuan during the same period.

In 2019, the business revenue generated from the Internet sector increased by 21.4% and reached 1.21 trillion yuan. Meanwhile profits were 102 billion and R&D expenses were 54 billion yuan, the latter rose by 23.1% which was slightly higher than the growth of business revenue.

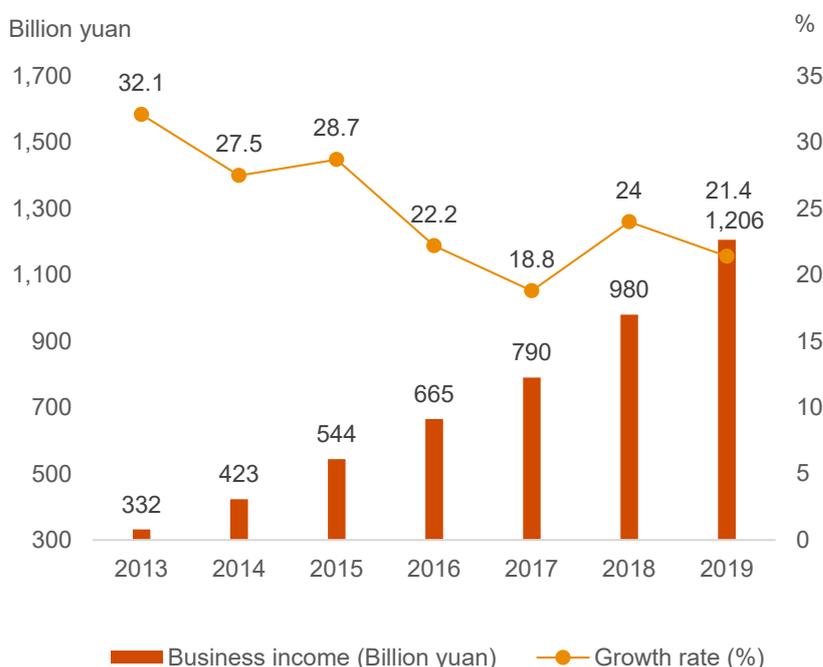
From 2013 to 2019, business revenue generated from the Internet sector grew from 332 billion yuan to 1.21 trillion with the annual growth rate dropping from 32% to 21%. This is one of the reasons why the digital economy has become one of the vital drivers for China's economic development in the past several years.

Figure 19: Cumulative revenue growth of Internet sector (2019 – May 2020)



Source: MIIT

Figure 20: Growth rate of Internet business revenue (2013 – 2019)



Source: MIIT

The digital economy played a vital role in combatting COVID-19 and its rapid growth will continue in the post-pandemic era

The digital economy played a significant role in China during the COVID-19 outbreak as well as the subsequent period when prevention and control measures came into effect. Digital technologies were applied extensively during this period, for example:

- Robots were used to deliver medical supplies which reduced the infection rate among healthcare workers.
- Intelligent image analysis technology improved the speed and accuracy of diagnosis.
- Telemedicine created conditions for medical experts to be consulted remotely.
- Other digital technologies including AI, big data and cloud computing were applied for pandemic mapping as well as crowd and infected individual tracking, etc.

Additionally, during the lockdown period, digital economic activities such as online education, food delivery, retail e-commerce, online entertainment and remote working became an essential part of everyday life.

As a result, the rapid growth of digital economy will continue in the post-pandemic era since people's lifestyles and work habits have changed. On top of this, China has some of the world's largest and most advanced enterprises in the digital sector many of them are heavily invested in related cutting-edge technologies.

In addition, China's government policies have been very supportive in the development of the digital economy. For example, according to professor Xiaojuan Jiang, Dean of the School of Public Policy and Management at Tsinghua University (and former Deputy Secretary-General of the State Council), the current Political Bureau of the Central Committee (China's central leadership) has commissioned four studies on the digital economy covering topics such as national big data strategy, the development of AI, integration and development of new media, as well as the development of blockchain technology.

In the last study, president Xi Jinping stressed that blockchain technology should play a bigger role in building China's strength in cyberspace, developing the digital economy and advancing economic and social development.



In conclusion, the COVID-19 pandemic triggered a crisis in China and across the world. However, the word crisis in Chinese, “weiji”, means both danger and opportunity. In the context of the digital economy, the COVID-19 pandemic is more likely to bring about new opportunities rather than present unforeseen dangers.

According to the CAICT, the digital economy now accounts for 36% of China’s GDP and is expected to account for more than 50% of the country’s GDP by 2030. If this occurs, China will definitely be poised to become one of the global leaders in the digital economy.

On the other hand, the recent tension between China and the US is a big challenge for some of Chinese tech and internet companies whom still rely on American technologies. However,

we should not forget that, during the 1960s, China independently developed its atomic and hydrogen bombs and man-made satellites. China’s economic miracle today is not kindness and sympathy of others, but collective intellect of Chinese people and a large group of competitive enterprises which emerged and rapidly technologically advanced since the opening up and reform.



Online education



Internet healthcare



Telecommuting



Digital governance



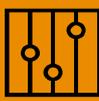
Industrial platforms



Digital transformation of enterprises



Virtual industrial parks and industrial clusters



Intelligent automation (e.g. unmanned distribution)



Gig economy



Sharing economy



Finally, since digital economy will continue to thrive in the coming years, and maybe decades. China’s companies, research institutes, as well as the government will keep investing on key technologies such as 5G mobile broadband, automation and robotics, artificial intelligence etc. Some of digital economic sectors would embrace rapid development in the post-pandemic era. Based on the guidelines to promote the digital economy issued by the NDRC and 12 other central government departments as mentioned in the beginning of this report, the government will continue to support the above ten new sectors (it may not include all sectors, but these are good examples).



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