

The Impact of Epidemic on Technology Companies

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ABSTRACT

The sudden epidemic in 2020 caused a rapid decline in the global economy, many famous companies declared bankruptcy due to the COVID-19. During the epidemic, many countries issued different rules in response to the epidemic. For example, the Chinese government announced at the beginning of 2020 that most foreign flights have been suspended. It is required that those who go to other places within 15 days need to be isolated at home for more than 21 days, and it is also forbidden to gather too many people. At present, most people must wear masks when they go to public places. These regulations also make it more difficult for technology companies to operate, because factories cannot produce, and people cannot go to the office to work and meetings together. This study studies the different effects of the COVID-19 on technology companies. It has concluded that the epidemic will not only bring bad effects to technology companies such as production suspension and sales decline, but also bring many opportunities for technology companies to develop in the future. During the isolation, people got used to online conferences. Also, realized the importance of artificial intelligence robots and other technological products. In addition, both investors and the government support the development of technology companies, which means that the development trend of technology companies in the future will be better.

Keywords: COVID-19, Resume production, Telecommuting, Technological innovations

1. INTRODUCTION

The epidemic happened since the beginning of 2020 has a significant impact on the economy. Especially in the technology sector. Epidemic has undoubtedly had a profound impact on the current world economy. These changes may have a profound impact on the industry's future development trend and competitive landscape. When SARS broke out in 2003, economic growth in the second quarter of the year slowed by two percents compared with the first quarter. However, in the same year, Alitaobao.com was launched, and JD.COM also began to test online sales, sowing the seeds for the explosion of the future e-commerce industry. Smart factories, smart manufacturing, digital transformation and remote intelligent services are being applied.

Karshenas and Stoneman examined four technology adoption theories: the rank, stock, order, and epidemic effects. Results showed rank and epidemic effects were supported but not the stock or order effects. Despite this, there has been no evidence to support the claim. Further, a survey conducted by Frame and White concludes that there is much more to be done in this area [1]. Raghavan discussed some of the innovations including expediting

the review of novel solutions and offering guidance to prospective innovators on regulatory issues in a recent twitter talk. Proceedings of the Colloquium on Administrative Science and Technology Islamic Financial System Epidemi. The spread of epidemics has been studied mathematically or through simulation. However, these studies are more effective if they combine with business operations in epidemic control [2]. Karshenas and Stoneman analyzed the four theories to understand how new technology is adopted. Two of the theories, rank and epidemic, were found to be valid while stock and order effects were not. Research into financial innovation has been lacking, however. Additionally, Frame and White (J Econ Lit 42:116-144, 2004) conclude that more work is needed in this area [3].

Tian et al. collected fifty-one papers presented at the inaugural Colloquium of Administrative Science and Technology (Coast 2013) event, held at Kuching, Sarawak, Malaysia. It has been reviewed by 750 experts world-wide and covers three main areas—Administrative Science and Technology, Management, and Arts and Humanities. Several mathematical or simulation works have been conducted on epidemic spreading. However, it is more effective if it is combined with business

operations in epidemic control [4]. Many epidemiology scholars and computer scientist have conducted research on how to accurately capture individuals' contact behavior data as well as how indirectly infer the contact network from other data source. Many methods have been proposed, most of which until intelligence data analytics related technologies, such intelligent sensing, network modeling and analysis, data visualization, multi-source heterogeneous data minin data-driven reverse engineering, machine learning an multi-agent simulation, among others. Based on granularity of contact modeling, the existing methods can be classified into four categories:static individual contracting, dynamic individual contact tracing, static group contact tracking and dynamic group contact tracking. Each of these methods are described and discussed separately following sections [5]. Zhang, through a questionnaire survey, conducted a survey and analysis of the impact of the epidemic on technology companies and their demand. He believes that most companies have actively carried out investigations and actively adjusted their business models. There will still be different impacts on economic indicators such as, market, and scientific research. The promotion of preferential policies for science and technology, and the expansion of preferential treatment for science and technology [6].

Jiao and Wang analyzed the impact of the epidemic on the financial technology industry by facing the challenge of the new crown epidemic. Based on existing knowledge and practical problems, we will deeply analyze the impact of the epidemic on financial technology, and take 360 Finance as an example. It is impossible to take measures to evaluate using relevant theories. On this basis, the correct strategies and strategies for financial technology companies in the post-epidemic period are proposed. Development proposals [7]. Chen collects relevant information from different types of companies in different industries that are affected by the epidemic. Through analysis and sorting, he has an in-depth understanding of the difficulties encountered by companies during the new crown pneumonia epidemic and analyzes the impact of the new crown pneumonia epidemic on different types of companies. The impact of different news, and based on the company's business layout, system design, information construction and other aspects of the proposed measures to provide a more effective reference for companies to further improve their ability to prevent emergencies [8]. Singh studied the impact of the epidemic on online technology products such as electronic health records, information and data or Internet medical treatment by searching information online. Finally, he knows that many medical decisions are made with the help of technological products, such as electronic medical records or online consultation. These products can improve the efficiency of medical work and reduce the possibility of doctors being infected. Let

patients enjoy more caring services [9]. MK mainly used online searches for the operation and financial reports of technology companies to study the impact of Indian technology companies in providing services to other industries such as retail, transportation, transportation, and manufacturing during the epidemic. Finally, know that technology companies will depreciate non-financial assets at a certain time in the future, hoping for credit losses and raw material supply [10].

2. FINANCIAL PERFORMANCE

Figure 1 indicates that the epidemic has not reduced the net profits of technology companies. On the contrary, it is an opportunity for many technology companies, and many of them have achieved better development because of it.

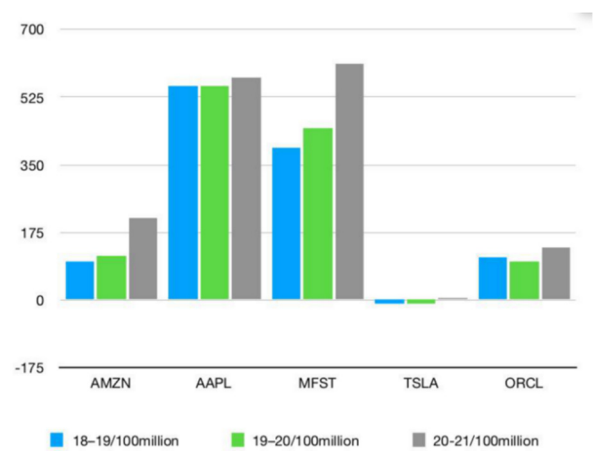


Figure 1 The profits of five technology companies in 2018-2021 [11]

Gartner has released a report on the top ten cloud computing trends for 2021 in 2020, outlining what cloud computing will look like in the coming year. The rapid expansion of cloud computing in 2020, even as the global economy was hit hard by the COVID-19 pandemic, "confirms the value proposition of the cloud," said Gartner research vice president Sig Nag. Whether IT is traditional software companies, or IT giants, some Internet companies and many start-ups have rushed into this market, cloud computing industry has exploded.

Sheng Wang, the Yingnuo Angel Fund partner, said the epidemic is obviously good for the game industry. In recent years, the pace of globalization of Chinese game companies has been fast. Tencent, FunPlus and other companies have achieved very good results in the global competition. In this epidemic, these companies will continue to grow in the global market, He told Fuel Finance. According to the performance report released by Chizi City recently, the adjusted net profit increased by more than 60% in 2019, and the revenue of product business increased by more than 100%, among which the growth of game category was obvious. China's cloud computing market maintained growth in 2019, with the

overall market size reaching 153.06 billion yuan. According to the 2019-2020 China Cloud Computing Market Research Annual Report released by CCID Consultants. In 2020, the epidemic accelerated the cultivation of a new generation of information technology markets, including cloud computing. Under the stimulus of policy traction and market demand, the popularity of the concept of cloud computing has increased, and the cloud computing market in China has expanded its application to various industries and fields. Ccid Consultants pointed out that the size of China's cloud computing market will reach 355.53 billion yuan by 2022.

3. NEGATIVE IMPACT

3.1. Difficulties

In 2020, the epidemic has swept the world, leading to a global economic downturn, and many multinational companies are facing the risk of bankruptcy. The epidemic has also caused many difficulties for technology companies. The reason of these difficulties includes that it is difficult for employees to return to work. This is because every country requires people to work from home, reduce going out, and close most public places. For example, office buildings, factories, shopping malls and electronics retail stores. As a result, employees can only be at home and cannot go to work in the company. According to data, due to the epidemic prevention and control measures restricting population movement, it has severely affected the resumption of production lines. For example, in the electronics field of Zhejiang and Guangdong, companies that manufacture parts and components of electronic products and assemble electronic systems will also be affected by supply chains that rely on electronic products and semiconductor components produced in China after being isolated from home. Since the electronic products of many international technology companies are manufactured and produced in China, it is expected that there will be a shortage of various smartphones, VR headsets, automobiles and other technical accessories. Facebook cancelled an order for the VR device Oculus Quest. The device has been out of stock, and the date of relaunched has been postponed to March 10. Even the very niche ROG Phone II has been discontinued. On February 17, 2020, Apple of the United States stated that it had suspended work due to the new crown epidemic and its plan to resume work has been postponed. Therefore, the short-term output of iPhone, AirPods or other Apple products will be lower than expected. In addition, it is stated that health agreements and restrictions on the gathering of people in public places are also one of the reasons why Apple decided to postpone the reopening of stores.

In addition, the epidemic has directly affected the revenue of retail stores. The suspension of shopping malls and department stores led to the cessation of offline merchandise sales, but fixed operating costs such as labour, rent, inventory, and bank loan interest expenses occurred normally. This will put pressure on the cash flow of small and medium-sized technology companies, and their operating profits will fall sharply, directly challenging the survival of the company.

3.2. Solutions

The epidemic has brought about difficulties for technology companies to resume work, offline sales, and resuming production of products. When faced with these problems, technology companies also thought of solutions. The main solution is to reduce the contact between people without affecting people's normal life, work and study. Most of the solutions are to solve the problem of offline sales through the development of online sales services, artificial intelligence and other online methods. The online shopping platform Taobao, JD.com, O2O home service and other orders have risen sharply.

In order to solve the problems of sales and inventory, technology companies have also made great progress in logistics. A large number of technology companies have begun to develop technology such as AI pickup, robot delivery, AI retail stores, and most communities or schools are also willing to accept these new products because it can reduce unnecessary contact between people, which let people have a smaller chance of being infected with COVID-19. Also, robots can solve the problems of contactless logistics and distribution between people and protect people's health.

In response to policies such as home office isolation, technology companies have also studied many apps to allow their companies and people to work at home and remotely without geographical restrictions. In these apps, people can join the remote international conferences and give speeches, which only cost a little money to use more convenient and high-tech skills. For example, in a video conference, people look better in the video. In addition, the online offices can also greatly improve the efficiency of employees' work at home and increase the company's output. There are also many apps developed for education and medical care, and these apps are very popular. After the people back work during the Spring Festival in 2020, more than 90% of the business of most securities firms and banks are handled through online channels. Corporate transactions and customer services have basically not been affected by the epidemic. This has also added a lot of profits to technology companies invisibly and solved the problem of previous losses.

4. FUTURE DEVELOPMENT TREND

After the epidemic, many industries have been affected to varying degrees due to the epidemic. The revenue of retail, catering, accommodation, tourism, transportation and culture and entertainment industries has fallen sharply. According to the flow of people and logistics caused by the epidemic is limited, these several industries have been stalled. At the same time, the education industry is not able to teach offline, which brings great challenges to the entire industry. Not only that, because of the stagnation of the entire flow of goods, some technology companies have caused difficulties in cash flow and a sharp decline in operating profits, so they are facing the challenge of corporate survival. Some technology companies also had a serious impact because of their supply chain restrictions. Apple's main foundry-Foxconn originally planned to resume work on February 10 and its resumption plan has been postponed. According to the impact of the epidemic on public transportation and number restrictions, employees are not allowed to return to the factory to work, which means that the output of iPhone, AirPods, etc. will be reduced. In the end, Apple needs to spend more money to maintain the entire supply chain, but even this will cause shortages, which means that Apple's turnover will also decline because offline stores cannot be developed. During the epidemic period, users can clearly realize that when using social platforms, some problems often occur. This is also because the programmers in the later stages did not fix these problems in time, which caused technology companies to be affected.

The industry has brought many problems, including technology companies. However, it will also bring many opportunities to these industries. The most obvious one is the entire logistics industry and the number one logistics industry in the technology industry because everyone needs to stay at home. The number of their express mail will increase to maintain their normal lives because they cannot go out, and the technology is because people stay at home and cannot go out, so they will use online technology a lot to maintain their normal lives. Work and study were the hottest software last year, which were used in schools and various educational institutions in large quantities. At the same time, this type of software will also be used in large quantities in the future. In the company, especially online conferences began to appear and become more and more popular. During this epidemic, Apple has encountered many opportunities because of the epidemic. First, because local schools need children to take online lessons at home, the government bought Apple computers and tablets for the children to ensure that the children can go to school normally. This also means that the turnover rate of Apple will increase because of the government's large-scale purchases. At the same time, Apple has also upgraded their sales system due to the epidemic, using remote sales

of mobile headsets and other products to customers in offline stores. This also means that Apple has improved a lot of their skills in sales due to the epidemic. In addition, because of the impact of the epidemic, online entertainment has become one of the main ways for people to entertain. This also means that many game video software and even social software have become more and more popular. Traffic has increased several times than usual. Due to the impact of the epidemic and the Chinese government's development of new infrastructure to support 5G network big data centres, people in artificial intelligence and other fields will continue to be investment hotspots for a period of time.

5. CONCLUSION

COVID-19 has not only caused difficulties in the sales of electronic products due to the suspension of production for technology companies, and difficulties in offline sales caused by epidemic prevention measures. At the same time, COVID-19 has also brought many development opportunities for technology companies, because after the epidemic, people have paid more attention to the development of online technology, which has increased many development opportunities for technology companies in the future. In addition, more investors also know that technology companies can become a highly profitable industry in the future. Therefore, technology companies may account for a large proportion of future investments. Through the epidemic, many students also changed their majors to some subjects that have relationship with technology in university or graduate school, such as computer science, which can also help technology companies find more highly skilled employees in the future.

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