

# *The Double-Edged Sword: the Impact of Covid-19 on Digital Transformation of Chinese SMEs*

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**Abstract:** The outbreak of Covid-19 in December 2019 in China brought a huge shock for the digital transformation of Chinese Small and Medium Enterprises (SMEs). The different impacts of Covid-19 on digital transformation are distinguished, being a result of different periods. It was found that Covid-19 had immediately brought about negative impact on supply chain of the digital transformation, including the disruption of cash flow, dilemma of logistics and low demand. Covid-19 also emphasized the significance of digital technologies and exerted the new mode of value chain, enabling digital transformation on a stable path in post Covid-19. This paper argues that Covid-19 likes a double-edged sword to affect digital transformation of SMEs and provides policy recommendations to promote digital development of Chinese SMEs.

## 1. Introduction

Small and medium enterprises (SMEs) play a vital role in the Chinese economy, according to the statistics from China Industry Research (2020), the number of SMEs has accounted for more than 95% of the total number of enterprises and bears around 50% of the national tax. This manifests that Chinese SMEs make a positive difference in easing employment pressure through providing more jobs. However, most SMEs have encountered issues of inefficiencies and high costs, and in the past few years, they begun to participate in digital innovation to subvert this limitation, because digital transformation seems more like an opportunity to boost the flexibility of SMEs and enhance their competitiveness when faced with uncertainties (Bellandi et al., 2019).

With the outbreak of Covid-19, most Chinese SMEs have to stop to avoid large-scale spread. Especially for those traditional SMEs, their offline stores are severely inhibited from opening. It is shown that 85% of Chinese SMEs are less likely to survive within three months since Covid-19 outbreaks in December 2019 (Zhu et al., 2020). Covid-19 causes limitations (e.g. human and resource) and exerts excessive influence on these SMEs (Juergensen et al., 2020), even if they are more likely to adapt into circumstance due to their private ownership and small size (Martin et al., 2019). Overall, SMEs are more vulnerable than large companies if they lack the support of digital technologies. Comparatively, SMEs can attach importance to digital technologies and speed up the transformation in post Covid-19. Therefore, it is significant to analyse the impact of Covid-19 on the digital transformation of SMEs in different stages.

## 2. Digital Transformation and SMEs

Digital transformation is initially presented in manufacturing industry with the advent of additive manufacturing and Industry 4.0 and defined as one process of creating incremental or disruptive innovation (Henriette et al., 2016). Bogner et al. (2016) proposed that digital transformation can be applied to a range of sectors and industries instead of being limited to one industry. This argument has been widely accepted by most scholars at present because digital transformation enables organizations to boost efficiency and market orientation beyond the boundary (Cenamor et al., 2019). The in-depth integration between a broad of digital technologies and traditional firms is also considered one approach to further develop digital transformation. SMEs appear more complicated to carry out such a transmission on the foundation of the required digital technologies and organizational capabilities (Garzoni et al., 2020). The digital transformation in SMEs also involves the replacement of supply chain without sufficient time (Juergensen et al., 2020). Especially in the special time of Covid-19 pandemic, it is critical to recognise the continuity of digital transformation among SMEs in accordance with supply chain. However, in discussing post Covid-19, this period appears a positive symbol, witnessing the creation of new value chain for SMEs through digital transformation (Matarazzo et al., 2020). Hence, it is worthwhile to critically consider the impact of Covid-19 on digital transformation of SMEs from these different periods.

## 3. The Impact of Covid-19 on Digital Transformation of Chinese SMEs

Regarding the continuity of Covid-19, the impact on the process of digital transformation varies in different periods. In the short run, a broad of SMEs have not fully prepared for this battle, and even the value chain of digital transformation has been destroyed (Juergensen et al., 2020). On the other hand, online products (e.g. online office and distance education) from a few innovative SMEs have ushered in a period of prosperity based on different digital technologies, including Big Data, Artificial Intelligence and 5G technology. Covid-19 provides a possibility to show the importance of these digital technologies, making these SMEs competitive in the long run. Covid-19 constantly catalyses the presence of digital products and highlights the significance of digital technologies in SMEs. Thus, such different impacts are distinguished based on different stages below.

### 3.1 Immediate Impact

Short-term lockdown likes a disaster of affecting regular operation of supply chain whilst conducting digital transformation. The transmission of technologies and materials from suppliers encounter handicap with financial risks. The upstream of cash flow has suffered immense shocks in most SMEs because their earnings mainly comes from closed offline stores. SMEs still need to defray their daily expenses which has led to huge cash gap (Huang et al., 2020). Additionally, logistical challenges enable SMEs to stand in dilemma. In the downstream, customers are forced to stay at home to reduce unnecessary demand, causing the interruption of digital projects and order cancellation in SMEs.

### 3.2 Long-Standing Impact

Despite the short-run impact from Covid-19 lasted for around half a year in China, its positive effect on digital transformation cannot be ignored in post Covid-19. Digital technologies appear to become a major substitution to traditional channel and is applied in various industries, such as telecommuting, E-government and online teaching. These new business modes gradually alter the customer value chain, stressing digital customer interactions and more agile processes (Blackburn et

al., 2020). Furthermore, those SMEs that advanced digital innovation activities at an early stage obtained more living spaces. More entrepreneurial SMEs grasp innovative opportunities to develop new areas in post Covid-19. Overall, Covid-19 promotes the awareness of digital transformation and creates new impetus for SMEs.

## 4. Policy Recommendations

Based on this analysis, some policy recommendations are provided to assist the digital development of SMEs. It can impel the digital transformation of SMEs if the Chinese government formulates the policies related to finance and taxation regulations. Additionally, the improvement of digital infrastructure provides a favourable atmosphere for SMEs to develop digital products.

### 4.1 Finance and Taxation

It is indispensable for government to solve the issue in the interruption of cash flow for enterprises. The policies about decreasing the interest rate of corporate loans and the interest on overdue loans can reduce daily expenses of SMEs. The establishment of special loan for digital projects can also support digital transformation of SMEs. Regarding taxation policy, it is a positive approach to alleviate the pressure of SMEs through reducing corporate tax. Additionally, forfeit is supposed to cancel because of the closure of physical stores during the Covid-19.

### 4.2 The Construction of Digital Infrastructure

It is essential to improve the investment demand through the construction of digital infrastructure, as well as providing materials and technologies support for the digital transformation of SMEs. One is to focus on the deployment of 5G technology, besides, coordinate with the suppliers and the government to construct high-speed network environment. The other is to save costs of data storage in the process of digital transformation based on the establishment of cloud storage platforms.

## 5. Conclusions

This paper analyses the short- and long- term effects of Covid-19 on digital transformation of Chinese SMEs to comprehend the nature of this pandemic. Supply chain and value chain are two main aspects to recognise the impact on the routing of digital transformation. It is summarised that Covid-19 has severely affected the supply chain, and conversely, changes the model of value chain based on digital technologies in the post pandemic and future. The new trend of accelerating digital transformation among SMEs is currently disseminated in various industries. Hence, Covid-19 exerts multiple effects on the digital transformation when considering different aspects. Based on the analysis, the policy recommendations concerning finance and taxation, as well as digital infrastructure are proposed in order to enhance the proceeding of digital transformation of SMEs.

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