

Digital Transformation of Chinese Small and Medium-sized Enterprises

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Abstract. Under the context of the rapid development of the digital economy in the global world, Digital Transformation (DT) for Small and Medium-sized Enterprises (SMEs) is becoming increasingly significant for various countries that are seeking sustainable development. In China, DT has been considered as a key project for future strategic development recently, as well. Therefore, the majority of SMEs have embarked on DT due to the motivation of either the market environment or governmental policies. However, as DT is a complicated and new proposition for SMEs, many of them have faced a series of challenges and issues. Hence, after considering the opinions of other scholars, detailed data, and reviews, this study hopes to give a brief introduction to the current circumstances and solutions to diverse issues that SMEs have met in order to assist SMEs in gaining a better understanding of DT. This paper may provide helpful insights for both the policy makers and financial investors.

Keywords: Digital transformation, small and medium-sized enterprises, dilemma, digital economy, solution suggestions.

1. Introduction

Small and medium-sized enterprises are the source of vitality for high-quality economic development. Taking a broad view of the global world, healthy and dynamic SMEs are a significant condition for a country and region to maintain long-term stability and prosperity and is closely linked to the fate of hundreds of millions of people. In China, whether in the stage of rapid economic growth or in the new stage of high-quality development from high-speed growth, small and medium-sized enterprises have always been the main force of China's economic development. SMEs have made outstanding contributions to China's economic development, contributing more than 50% of the tax revenue and creating more than 60% of the GDP. In the current era, under the influence of the development of digital technology, the digital transformation of SMEs is becoming an increasingly important proposition. However, there are some problems that need to be solved urgently in the digital transformation of SMEs in China. Therefore, this study aims to make a comprehensive overview of the current situation, problems, and solutions to the DT of SMEs in China.

2. Problem

2.1. High Cost

High cost in DT mainly refers to the high trial-and-error cost, resources cost, and labor costs, which are indispensable but exorbitant for SMEs. Innumerable SMEs are not capable of covering these costs completely. Not to mention most SMEs are struggling with their survivors. As a result, SMEs have a tendency to maintain the existing operation patterns rather than seek opportunities to implement DT. In the subsequent section, detailed explanations will be given to help better understand the dilemmas that SMEs are facing.

To begin with, high trial-and-error cost is a serious challenge for SMEs. Countless SMEs themselves are facing a shortage of funds while their financing mechanisms are immature and thorough [1]. However, DT focuses on capital investment. Even though SMEs can take advantage of governmental policies and use leverages, it is of great difficulty to maintain the steady investment for the long term. Once there are issues within the process of DT or cognitive fallacies or failures in

balancing the allocation of funds for DT and normal businesses, it is likely to affect the capital chain. Under this situation, DT is forced to suspend at best. At worst, normal businesses will be affected or even a series of chain reactions, such as bankruptcy, brought by capital chain breaks.

Moreover, the lack of resources leads to a series of problems. Resources here mainly refer to talents, funds, and technologies. DT cannot be separated from the support of advanced digital technologies, high-end digital elites, and sufficient capital reserve. However, most SMEs start DT late and have limited deposits. Therefore, they not only lack adequate funds to purchase the required facilities and equipment, but they also have weak independent ability of research and development, resulting in difficulties in mastering key technologies of DT. Besides, SMEs are at a disadvantage in the competition for high-end digital elites in the labor market as they are less attractive compared with large-scale enterprises.

Eventually, the increase in labor cost cannot be ignored. DT is a systematic project, which partially depends on the subjective initiatives of the employees, including managers and staffs. Therefore, administrative staffs are supposed to get relevant training to ensure that they are able to tackle issues arising from DT and make full use of it. Simultaneously, DT is also closely related to the level of digital expertise of staffs. Interiorly, SMEs should carry out general lessons for employed staffs. Exteriorly, SMEs ought to recruit the talented to keep up with the existing development of DT. All of these measures will cost a great amount of funds that SMEs may find difficult to afford.

2.2. Unclear Path

DT is basically a process of reformation of enterprise production instruments and productivity from physical and offline to non-physical and online. During the process, the conventional business models will be difficult to sustain inevitably due to updates of software and hardware, therefore, the establishment of new business models should be put on the agenda [2]. In general, DT is an extremely sophisticated and systematic reformation that includes changes in the logistics chain, information chain, and fund chain. The transformation needs are unclear and complicated. Simultaneously, the lack of industry-standard criteria has led some enterprises to fail to realize their transformation positioning, development stage, and strategic planning. Under this circumstance, carrying out DT aimlessly is likely to be counterproductive.

From the perspective of SMEs, the DT is risky and uncertain [3]. Due to the impact of market competition and the economic environment, the average life cycle of most SMEs is only about 3-5 years, leading to huge survival pressure. Therefore, in order to survive in a fierce market, the majority of SMEs put their emphasis on modern business models to figure out solutions for survival. As DT is a fundamental reformation that consumes a great number of resources, a long period of time, and a large amount of funds, the enthusiasm of SMEs who are willing to take the initiative to implement DT is quite low. Meanwhile, there are too few cases of SMEs successfully carrying out DT in the industry. Therefore, it is difficult to repeat the successful experiences, and the decision-making cost is high, which further reduces the willingness of SMEs to implement DT.

2.3. Lack of Digital Consciousness and Digital Skills

Regardless of the low willingness brought by an unclear path, most SMEs lack digital realization, which makes it hard to evaluate the effects and benefits of DT. From the empirical study of domestic SMEs, the majority of them only know the concept of DT. But most SMEs are not aware of the development path, specific processes, and fundamental conditions at all. Some leaders of SMEs even deem that intelligent manufacturing, or the use of digital software is DT. Moreover, most SMEs attach to the industry leaders, or in the downstream of the industries. Therefore, the technical requirements are not so high, which means the existing equipment is fully enough to meet the demand of the market. The combination of various factors has furthered weakened SMEs' awareness of DT, making them subliminally waive actively accepting DT from the conscious level.

Another significant factor is the lack of digital elites who not only understand digital technologies but also comprehend business operations as DT is a high-tech reformation [4]. However, in most

cases, these kinds of elites are divided by industry leaders, which makes it difficult for SMEs to obtain human resources in this area. In addition, even though the existing digital platforms provided by the contemporary market have already evolved mature methods of marketing and strong cashability, most SMEs make use of extant platforms in a low-efficient and simple way. The reason is partially because of the failure to fundamentally implement DT, which can be attributed to the lack of digital skills and talents in SMEs.

3. Solution

3.1. Enhance the Capability of DT

At the beginning, conducting an evaluation is an optimal way for SMEs to realize the current stages. Combined with DT industry criteria, national guidelines, and other standards, SMEs are supposed to carry out specific DT evaluations, either alone or in partnership with professional third-party assessment agencies [5]. The evaluation should construct detailed criteria for digital indicators in order to comprehensively consider the current status of enterprise operations, fundamental factors of DT, and evaluation of the transformation effect. Through this process, the possibility and feasibility of DT can be clarified. Furthermore, evaluating the support of local policies, industry public services, and support of market resources is an optimal way for SMEs to identify the development path, clarify the priority of DT, and ensure the considerable input-output ratio of DT effectively. To conduct a particular evaluation of DT, entities, such as digital transformation service providers and third-party evaluation agencies, are supposed to concentrate on SMEs' unique transformation requirements and assist them in developing digital transformation plans.

In addition, innovating ways of financing and investment is of great significance. As scarce capital plays a significant role in impeding SMEs from implementing DT, innovating and creating various methods to assist SMEs in replenishing funds is quite necessary [6]. From the perspective of the government, in order to encourage SMEs to implement DT actively, local governments should lower the digital threshold, reduce part of procedural expenditures, and give preferential policies to some taxes. Establishing special offices for SMEs is able to effectively play the role of the local special fund and guide the path to DT. Simultaneously, financial institutions ought to be encouraged to provide specific financing methods for SMEs in transformation, and set up independently operated funds, which are highly advantageous to broaden channels of financing and investment for SMEs.

3.2. Clear the Path of DT

Reinforcement of top-level design signifies creating a beneficial policy environment for SMEs to implement DT [7]. In this case, the central government is supposed to issue policies as outlines for DT of SMEs and give specific development plans and guidelines for their path. With flexible use of policies, local governments are able to take advantage of the local characteristic industry to establish a unique path of DT and build demonstration digital industrial clusters, which can achieve economies of scale and cost reduction and efficiency. In addition, at the education level, major universities and colleges should make special adjustments to create a comprehensive, multi-channel talent cultivating system, which enables digital talents can be sent to various enterprises in a planned and organized way. The government can encourage direct cooperation between universities and enterprises. Enterprises can provide empirical studies for academics while universities can provide digital talents for companies, so as to achieve a positive cycle.

Additionally, establishing specialized service agency and benchmark would assist SMEs to clarify their paths. The government should actively support and develop consulting service institutions of DT of SMEs, creating a collaborative promotion mechanism that includes government guidance, enterprise leadership, and institution support [8]. The institutions are able to provide comprehensive assistance and training for SMEs so as to help them make better financing decisions and risk management. As specialized third-party institutions, they are supposed to give full play to the advantages of specialized offices to match the products and services that meet the current needs of

SMEs, which can promote the gradual development of DT. Moreover, the government should consider the local conditions to cultivate and promote demonstration cases of DT, creating industry benchmarks. Through successful cases, SMEs are able to gain valuable experiences to conduct self-reflection.

3.3. Cultivate Awareness and Ability for DT

In the first place, it is necessary to optimize the resource acquisition mechanism. From the perspective of the market environment, compared with large-scale enterprises, it is of great difficulty for SMEs to acquire technological resources related to digitalization because of the impact of their own survival dilemma and the Siphonic effect. As a result, a mature and comprehensive resource acquisition mechanism has to be established for urgent needs. Moreover, from the perspective of current policies and regulations, there are relatively few specific policies that aim at supporting SMEs to implement DT [1]. Some financing support projects even have requirements for enterprise qualifications and scale. Therefore, for the core proposition of how to improve the independent innovation ability of SMEs in the process of DT, the government is supposed to enhance the construction of the policy framework and create a suitable environment for development centering on optimizing resource allocation mechanism.

Furthermore, strengthening the incentive mechanism is beneficial for mobilizing enthusiasm. In view of the fact that SMEs have low motivation to implement DT due to unclear paths and unpredictable income, the government is able to set up multi-level and diversified reward mechanism [8]. To begin with, the financial and tax support for SMEs should be strengthened in order to reduce the cost of DT. For instance, reducing the personal income tax of digital talents and giving preferential treatment to the transaction tax in the process of buying and selling digital devices. In addition, local governments are supposed to actively encourage SMEs to conduct pilot projects of DT. For those remarkable cases, awarding them with financial support and incentives will become a great stimulation.

4. Conclusion

In light of the fast expansion of the global digital economy, Digital Transformation (DT) for Small and Medium-sized Enterprises (SMEs) has become increasingly crucial for many countries pursuing sustainable development. In China, DT has lately been identified as an important initiative for future strategic development. As a result, the majority of SMEs have adopted DT owing to market conditions or government initiatives. However, because DT is a complex and novel concept for SMEs, many of them have encountered a number of obstacles and issues. As a consequence, after examining the opinions of other academics, extensive data, and reviews, this research seeks to provide a brief overview of the present situation and answers to many challenges that SMEs have encountered in order to aid SMEs in obtaining a better knowledge of DT.

However, this study still has some limitations. Firstly, there is insufficient data available on SMEs undergoing digital transformation, which is likely to lead to erroneous judgement on some issues. In addition, in analyzing the relevant situation of DT, this study focuses on domestic factors, so some influences from foreign countries may lead to unforeseen situations.

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