

Digital Economy and the Transformation Path of Small and Medium-Sized Enterprises

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Abstract. As the third major economic system after agriculture and industry, the digital economy has begun to drive the world's economic development and is now attracting much attention from around the world. With the rapid spread of big data, artificial intelligence and the Internet, the digital economy has also gradually shown strong growth and is now one of the main drivers of high-quality development in China's economy. Therefore, the small and medium-sized enterprises (SMEs) will face some opportunities and problems in the transformation and upgrading process. Typical problems are that the company has insufficient funds, lacks professional staff, and is risk-averse. SMEs do not need to be fully digitally transformed at all stages, according to this paper. Instead, they should adopt a phased approach according to the scale and foundation of their own company, focus on the most urgent problems first, and follow the lead of chain-leading enterprises to build a joint transformation plan for the entire group. This paper will provide some practical ideas for small and medium-sized enterprises and serve as a reference for the government.

Keywords: Digital economy, small and medium-sized enterprises, digital transformation, transformation path, manufacturing industry

1. Introduction

With the spread of the whole-society digitalised wave at home and abroad, the digital economy is growing increasingly robust, and various sectors are gradually moving away from the old ways of marketing. Mechanical and Manufacturing Industry is not very advanced in terms of digitalisation; therefore, it faces certain problems in the course of digitalisation.

Based on the above, this paper will study the general digital economy environment and analyse practical problems in the digital transformation of Chinese SMEs. Due to the actual operating conditions and deficiencies in funds and staff of small and medium-sized enterprises, low-cost and feasible transformation paths that are in line with the current situation of SMEs will be studied.

This study links the theory of the digital economy with the actual situation of manufacturing SMEs. From the aspects of operations, marketing and talent management, it puts forward practical countermeasures and specific proposals instead of general theories. All the above results and policy recommendations are based on the development features of manufacturing SMEs, and it is hoped that they will provide reliable references for these enterprises in carrying out digital transformation.

2. Current development and transformation status of SMEs in the digital economy

With the continuous development of digital technology around the world and support policies in China, many industries across the country are speeding up their digitalisation. This wave has altered the competitive environment and business model of the old market. Digitalisation has changed the market's competition and no longer needs to be done through traditional offline means. To keep up with the changes in the market, many small and medium-sized enterprises have started to adopt new ways of working under digitalisation.

2.1. Overall trends in digital economy development

With the spread of big data, artificial intelligence and cloud computing, a number of supporting policies have been released by the central and local governments of China. There are special funds and subsidies for digitalisation, and leading models have been established to encourage top enterprises to take the lead in upgrading the whole industry through cooperation. Thus, the above policies have helped small and medium-sized enterprises make economic use of digital tools and have created an innovative and upgrading environment for industries [1, 2]. At present, manufacturing and trade, as well as the service sector, have begun to shift from traditional offline forms to digital ones. Now, the development of digitalisation is required to enhance the quality and efficiency of traditional industries. According to Wu and Guo, by the end of 2022, the number of small and micro enterprises in China had exceeded 50 million, accounting for 50% of tax revenue, more than 60% of GDP, and over 70% of technological innovation [3].

2.2. Current operating status of SMEs

SMEs are essential parts of the market in China and cover manufacturing, trade, services, etc. They are usually small in size, have an organised structure that is light, are quick to make decisions and respond to changes in the market, but also have a weak risk-bearing capacity. SMEs are large employers of grassroots workers, so they can help stabilise employment, stimulate the local economy, and promote the development of the real economy [4]. However, due to their relatively small scale of business, most SMEs still have the problems of insufficient working capital, limited financing channels and a lack of technical skills. The above restrictions are not good for the long-term development of the enterprise and will not promote digitalisation. Sagala and Öri have found that 67 per cent of SMEs are in trouble, and more than half have closed within five years [2].

2.3. Current status of digital transformation among SMEs

With the spread of digital awareness, more SME operators are beginning to pilot some digital initiatives. Some enterprises have made some initial digital construction; currently, they can only do basic online order matching, digital accounting, etc., and talk to customers virtually. In general, the willingness to go digital is gradually increasing, and the number of enterprises participating is also rising continuously. Business managers know that digital tools can reduce the cost of manual operations and improve operating efficiency; they can also solve the distance problem caused by geography and expand the range of online sales to attract more consumers [1]. However, the degree of change is not the same. Only a few well-funded small and medium-sized enterprises have achieved full-chain digital construction; most others are still in the early stages and only use basic digital tools for some functions, such as office work, order processing and accounting. Production,

supply chain, marketing and service operations are not integrated, and the whole transformation result still has a long way to go [5]. Dai and others found that although most Chinese enterprises have started to use digital technology, there are still considerable differences among regions and industries; generally, larger, younger, higher-wage enterprises are more likely to pursue digital transformation [5].

3. Analysis of obstacles to SME transformation and upgrading

The current problems of SME digitalisation are not due to a single cause; rather, it is a combination of internal operating deficiencies in the enterprise, weak coordination of the industrial chain, and external market and policy environments. Three levels of the reasons for this phenomenon are shown in the following three parts: the enterprise level, the industry level, and the policy-market level [1].

3.1. Enterprise-level constraints

Capital shortage, old-fashioned management mode, lack of talent, and weak innovation ability are the main reasons for the failure of digitalisation inside the company. Most small and medium-sized enterprises are small in scale, have low revenue and working capital, and are thus low-risk. At the beginning of the digital transformation, there will be large expenditures on equipment, systems and other technologies, and profit may temporarily drop. Many enterprises are afraid of the loss from a trial-and-error. Most small and medium-sized enterprises are still in an old management model that relies on experience and has a simple hierarchy and loose process, which does not meet the standardised, data-driven requirements of digital operation. In terms of talent development, most enterprises do not have a long-term plan for systematic digital training and are thus unable to keep up with new technologies. Coco and others believe that the limited digital literacy of entrepreneurs and managers is the main reason for the lack of use of new technologies in small and medium-sized enterprises [6]. Low profitability restricts the company's funds for research and development, and as a result, it cannot develop new technologies for the fourth industrial revolution.

3.2. Industry-level constraints

An all-encompassing digital support system has not been fully established at the industry level in all parts of the country yet. The level of digitalisation for the upstream and downstream enterprises is different, and thus data silos have formed and collaborative transformation is constrained [7]. Most of the popular digital management systems and intelligent production software that have appeared in the market are for large enterprises with good financial conditions and complicated business models. All the above systems are general-purpose, but they are too expensive; there are no low-cost, lightweight and convenient digital solutions for small and medium-sized enterprises. The products available no longer meet the needs of SMEs and thus slow down their development [8]. Zhao and others have pointed out that the openness of the platform and inter-organizational cooperation are related to the development of SMEs, but many SMEs still have difficulty entering such platforms [8].

3.3. Policy and market constraints

At the level of policies and markets, the institutional system is still lacking. Although some areas have released policies to promote the digital transformation of industries, the implementation

regulations are too general, and the subsidy distribution mechanism cannot address the actual requirements of small and medium-sized enterprises. Resource allocation efficiency is low, and the policy dividend has not been fully realised [3]. At the same time, due to the low barrier to entry in China's digital service industry, there has been a market of mixed quality with considerable differences in technology and service standards. If the quality of the service provider is poor, there may be defects in the delivered goods; thus, the small and medium-sized enterprise will have to bear extra maintenance and replacement costs, incur higher trial-and-error expenses, and even face the risk of system failure or data loss. As a result, many small and medium-sized enterprises have chosen to wait and see regarding the digitalisation of their enterprises.

4. Transformation and upgrading pathways for SMEs in the digital economy

Due to the lack of funds, talent and technology, SMEs cannot directly implement the whole-chain digitalisation model of large enterprises. Based on the operational characteristics, transformation pain points and industry realities of these enterprises, this paper proposes some practical and low-cost paths in the three areas of operations, marketing and talent [1].

4.1. Operational transformation: prioritizing production and internal management digitalization

SMEs should not just buy high-end customised systems blindly. Lightweight and modular digital management tools can be used to cover the production process control, inventory management and financial accounting of production. A digital system can be employed to overcome the problem of data silos in different departments of a company and, thus, replace manual ledgers and traditional management to reduce human error and improve operating efficiency. Big Data technology can be used to collect information on the market, customer opinions and changes in the industry to predict demand for new products more accurately. Now people can use data to make a reasonable decision about the business instead of guessing, thus reducing the risk of having too much inventory or idle equipment. Aghazadeh and others have found in their studies that the ability of the digital platform and digital resilience to fully transmit the effect of digital resources on SME growth is realised; therefore, it should be necessary to construct a strong base of digital capabilities first before pursuing high-level transformation [9].

4.2. Marketing transformation: building a diversified digital marketing system

SMEs should build a new system of diversified digital marketing to solve the problem of an old offline way of attracting customers. With the development of short videos, live-streaming e-commerce and social media have become hot topics that attract many people's attention; therefore, SMEs can use these online platforms to boost sales and carry out integrated online-offline operations. SMEs do not need to follow the high-investment marketing model of large enterprises, so they can use platform user data to build customer profiles and then conduct targeted content distribution and product promotion; otherwise, it will be less effective than mass promotion [4]. Digital Marketing is used to better communicate with customers and the public to increase brand awareness; thus, more people will choose the new products and thereby drive development. According to the ASEAN survey by ERIA, after the pandemic, many micro enterprises have increased their use of e-commerce, electronic payment systems and social network services to some

extent and therefore have had more digital marketing tools available for small and medium-sized enterprises now [4].

4.3. Talent transformation: building a professional digital talent team

Building a good digital workforce to help the small and medium-sized enterprises thrive. To solve the problem of recruiting and retaining staff, the small and medium-sized enterprise will hire outside and also organise internal training. On the one hand, based on the needs of the company, some technical positions will be filled by experts in digital operations, data analysis, etc. At the same time, regular training in digital skills and online business operations should be organised to improve the overall level of digital literacy for all employees [6]. Improve the incentive system, offer better compensation and promotion opportunities, improve the working environment of the company, and reduce the loss of talent. A stable group of digital talents will be required to carry out the digitalisation plan and support the company's development for a long time. Vecino and others have shown that the digital transformation strategy can positively affect the performance of all areas in economic development, human resources, foreign investment, etc., and at the same time enhance the innovation capacity of enterprises by strengthening their own digital capabilities [10].

5. Conclusion

This paper explores the changes and upgrades of SMEs in the background of the digital economy. It lays out the general direction of development for the digital economy of China, and through industry research and enterprise case studies, presents the development characteristics and digital construction status of SMEs. Therefore, this study will explore the overall problems that small and medium-sized enterprises face in their internal environment, industry conditions and policies; among these problems, lack of funds, outdated management mode, weak support for digital services and vague policy implementation are among the most prominent.

Given the current situation of small and medium-sized enterprises, they are relatively small in scale, have weak risk resistance and resource constraints, and therefore this paper puts forward differentiated, low-cost transformation paths for operations, marketing and talent, and offers practical upgrading solutions for all kinds of SMEs. Digitalisation is not only for large companies; it is also needed to help small and medium-sized enterprises catch up with the pace of economic development and change. Transformation for small and medium-sized enterprises will not happen overnight; therefore, it is advisable to take several steps in light of their actual conditions.

In the future, the development of the digital economy will increase and competition will intensify. With the changing circumstances of the company now, new digital technologies should be employed. It is suggested that the local government will improve the optimisation of digital support policies, promote the construction of a digital service ecosystem for this industry, and offer more low-cost solutions to small and medium-sized enterprises.

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