

Practical Paths for the Digital Transformation of Small and Medium-Sized Enterprises

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Abstract: In today's economic environment, small and medium-sized enterprises (SMEs) play a vital role. They are not only a major source of employment but also drivers of innovation and economic growth. However, with the rapid development of technology and changes in market demand, SMEs are facing increasingly severe challenges. As an important strategy to address these challenges, digital transformation has become an inevitable path for the development of SMEs. This paper aims to explore the current status and challenges of the digital transformation of SMEs and provide a framework for practical paths, so as to help SMEs better respond to the opportunities and challenges brought by the digital era.

Keywords: Small and medium-sized enterprises; Digital transformation

Online publication: June 19, 2026

1. Introduction

Digital transformation refers to the process by which enterprises change traditional business models, operational processes and value creation methods through the application of new technologies, so as to improve efficiency, enhance competitiveness and meet customer needs. For SMEs, digital transformation can not only improve internal management and operational efficiency, but also expand market channels and enhance customer experience, ultimately achieving sustainable development. Therefore, digital transformation is crucial to the survival and development of SMEs.

2. Current status and challenges of digital transformation

2.1. Current status of digital transformation of SMEs

In recent years, with the popularization of technologies such as the Internet, cloud computing and big data, the digital transformation of SMEs has gradually accelerated, including the introduction of e-commerce platforms, social media marketing, cloud services and other forms. This transformation has not only improved the operational efficiency of enterprises but also expanded their market reach. Nevertheless, despite the overall positive trend, a considerable number of enterprises are still slow in implementing digital transformation,

especially in some traditional industries where the pace of transformation lags behind ^[1].

2.2. Major challenges faced

2.2.1. Financial constraints

Many SMEs are small in scale with limited financial resources, making it difficult to afford high digital transformation investment costs, including expenses for purchasing hardware equipment and software systems, as well as subsequent maintenance and upgrade costs. Insufficient funds prevent many enterprises from carrying out necessary technological updates and limit the speed and depth of their digital transformation.

2.2.2. Insufficient technical capacity

SMEs often lack professional IT teams and technical support, making it hard to effectively apply new technologies in the process of digital transformation. At the same time, enterprises have a relatively weak understanding of digital tools and platforms, and tend to miss opportunities to use digital technologies to improve their businesses. Thus, the lack of technical capacity leaves SMEs at a loss when facing the complex digital environment ^[2].

2.2.3. Backward management concepts

Many SMEs hold relatively traditional management concepts that fail to keep pace with the needs of the digital era. In some enterprises, management lacks sufficient understanding of the importance of digital transformation and has no long-term planning or strategic layout. Such backward management concepts not only reduce the decision-making efficiency of enterprises but also lead to a lack of necessary support and encouragement during the transformation, resulting in employee resistance to digital transformation.

2.2.4. Personnel training and cultural change

SMEs often face the problem of insufficient employee skills; many employees are unfamiliar with the use of new technologies and lack relevant training and practical opportunities. In addition, corporate cultural change is also a major challenge. Digital transformation requires an open and innovative cultural atmosphere within the enterprise to encourage employees to actively participate and adapt to changes. However, constrained by traditional culture, many enterprises make slow progress in this regard ^[3].

3. Practical paths for digital transformation

3.1. Formulate a digital transformation strategy

3.1.1. Clarify transformation goals and vision

The first step in formulating a digital transformation strategy is to define the goals and vision of the transformation. Enterprises should set clear digital transformation objectives based on their industrial characteristics, market demand and future development direction. These objectives may include improving customer satisfaction, enhancing market competitiveness, optimizing internal processes and reducing operational costs. In addition, enterprises should build a long-term vision to ensure that digital transformation is not just a short-term project but a sustained strategy, ultimately achieving comprehensive business transformation and innovation.

3.1.2. Conduct market and competitive analysis

In-depth market and competitive analysis is critical in strategy formulation. Enterprises should analyze the changing trends of the current market environment, including consumer behavior, industrial technological development and the digital transformation progress of competitors. Through SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, enterprises can identify their position in digital transformation and areas for improvement. Meanwhile, by learning from the successful experiences and failures of competitors, enterprises can better position their transformation strategies and seize market opportunities in the process ^[4].

3.2. Build digital infrastructure

3.2.1. Construct information technology infrastructure

A strong information technology infrastructure is the foundation of digital transformation. Enterprises need to invest capital and resources to build a stable hardware and software environment, including servers, network equipment and security protection systems. The introduction of cloud computing technology enables enterprises to flexibly expand IT resources, reduce maintenance costs and improve data processing capabilities. Furthermore, enterprises should ensure that the infrastructure has good scalability to adapt to the ever-changing business needs in the future ^[5].

3.2.2. Develop data management and security strategies

Data is one of the most important assets of enterprises in digital transformation. Therefore, establishing a sound data management and security strategy is particularly critical. Enterprises need to formulate standardized processes for data collection, storage, management and analysis to ensure data accuracy and availability. Meanwhile, with the increase in cyber security threats, enterprises must strengthen data security protection measures, including encryption, access control and regular security audits. In addition, compliance is a non-negligible part of data management; enterprises should abide by relevant laws and regulations to ensure the legality of data processing ^[6].

3.3. Selection of appropriate digital tools and technologies

3.3.1. Cloud computing and big data

Cloud computing and big data are important supporting technologies for digital transformation. Cloud computing provides flexible resource allocation solutions, allowing enterprises to quickly adjust IT resources according to actual needs, thereby reducing infrastructure investment and maintenance costs. At the same time, big data technology helps enterprises extract valuable information from massive data and provide data support for decision-making. By analyzing data on consumer behavior, market trends and operational efficiency, enterprises can better formulate market strategies and optimize business processes ^[7].

3.3.2. Artificial intelligence and automation

Artificial intelligence (AI) and automation technologies are playing an increasingly important role in digital transformation. Through algorithms such as machine learning and natural language processing, AI can help enterprises realize intelligent data analysis, customer service and production management. For example, chatbots can be used to improve customer service efficiency, and predictive analytics can optimize inventory management. Automation technology can effectively reduce labor costs, improve production efficiency, and allow employees to focus more on innovative and strategic tasks ^[8].

3.3.3. Mobile applications and e-commerce platforms

With changes in consumer habits, the development of mobile applications and e-commerce platforms has become an important part of digital transformation. Enterprises can enhance customer interaction and increase brand exposure by developing mobile applications. Meanwhile, the establishment of e-commerce platforms helps enterprises expand sales channels and directly reach more consumers. Combined with social media marketing, enterprises can better communicate with users, meet their personalized needs and improve customer loyalty ^[9].

3.4. Cultivate an internal digital culture

3.4.1. Employee training and skill improvement

Digital transformation is not only a technological change but also a talent transformation. In this process, enterprises need to attach importance to employee training and skill improvement. Regular digital skills training should be carried out to help employees master new technologies and tools, and improve their work efficiency and innovation ability. In addition, enterprises should encourage employees to participate in digital transformation projects, accumulate experience through practical operations, and continuously adapt to the digital environment ^[10].

3.4.2. Encourage innovation and change management

Building an innovative culture is crucial in the process of digital transformation. Enterprises should create an open and inclusive environment that encourages employees to put forward ideas and suggestions and actively participate in all aspects of digital transformation. Meanwhile, change management cannot be ignored. Enterprises should set up a dedicated team to manage the change process, solve problems encountered by employees in the transformation in a timely manner, and ensure the smooth progress of the transformation ^[11].

3.5. Implement digital transformation projects

3.5.1. Project planning and implementation steps

Once the digital transformation strategy and infrastructure are determined, enterprises should formulate detailed project planning and implementation steps. Project planning should include a clear timetable, resource allocation and division of responsibilities. Through phased implementation, enterprises can gradually promote digital transformation and reduce risks. After each stage, summary and feedback should be conducted to adjust follow-up plans in a timely manner and ensure that the project always moves toward the established goals ^[12].

3.5.2. Monitoring and evaluation mechanism

The success of digital transformation cannot be separated from an effective monitoring and evaluation mechanism. Enterprises should set key performance indicators (KPIs) to regularly evaluate the transformation effects, including the efficiency of business processes, improvement of customer satisfaction and cost reduction. Through data analysis, enterprises can understand the effectiveness of digital transformation implementation, identify existing problems and make corresponding adjustments. In addition, establishing a feedback mechanism to encourage employees and customers to put forward opinions on the transformation process helps enterprises continuously optimize their transformation strategies ^[13].

4. Future outlook

4.1. Trends in the digital transformation of SMEs

4.1.1 Impact of emerging technology development

With the rapid development of information technology, emerging technologies are constantly emerging and profoundly affecting the digital transformation process of SMEs. The application of technologies such as artificial intelligence, the Internet of Things, blockchain and 5G is driving innovation in production, management, marketing and other aspects of enterprises. The introduction of AI enables enterprises to use data analysis to optimize decision-making and improve operational efficiency; the Internet of Things provides enterprises with real-time monitoring and management capabilities, helping to realize intelligent production; and the popularization of 5G technology guarantees the speed and stability of data transmission, allowing enterprises to respond to market changes faster. The wide application of these emerging technologies will bring new opportunities for SMEs, helping them improve the quality of products and services and enhance market competitiveness^[14].

4.1.2 Changes in market demand

Changes in market demand are also an important factor driving the digital transformation of SMEs. Consumers' demand for personalized and convenient services is rising, and traditional business models are facing challenges. SMEs need to use digital means to more accurately grasp market trends and improve user experience. For example, use big data to analyze consumer behavior and accurately locate target customers; expand sales channels through e-commerce platforms to realize online and offline integration. In this context, SMEs must respond quickly to market changes and adjust products and services to meet the changing needs of consumers.

4.2. Continuous improvement and dynamic adjustment

4.2.1. Regular evaluation and feedback mechanism

To ensure the success of digital transformation, SMEs need to establish a regular evaluation and feedback mechanism. During the transformation, enterprises should set KPIs to regularly evaluate the effectiveness of implemented projects, including operational efficiency, customer satisfaction and cost control. Through data analysis, enterprises can understand the effect of transformation, identify problems in a timely manner and make adjustments. In addition, collecting feedback from employees and customers helps enterprises continuously optimize transformation strategies and improve the adaptability and flexibility of transformation^[15].

4.2.2. Dynamically adapt to market changes

The market environment is changing rapidly, and SMEs must have the ability to dynamically adapt to market changes in the process of digital transformation. Enterprises should establish a flexible organizational structure, encourage teams to continuously innovate at work and respond quickly to changes in market demand. Meanwhile, through agile management methods, enterprises can improve decision-making efficiency and accelerate project progress. In this process, enterprises also need to pay attention to changes in the external environment, such as policies and regulations and competitor dynamics, so as to adjust strategies in a timely manner and seize market opportunities.

5. Conclusion

Digital transformation has become an inevitable choice for the survival and development of SMEs. In the era of digital economy, improving operational efficiency, optimizing customer experience and promoting business innovation through digital means is an important way for enterprises to achieve sustainable development. Successful digital transformation can not only help SMEs reduce costs and improve competitiveness but also enable them to remain invincible in the fierce market competition. Therefore, SMEs must attach importance to digital transformation, take active measures to upgrade and transform, seize opportunities in the digital wave and move toward a higher stage of development.

Disclosure statement

The authors declare no conflict of interest.

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