Exploring the Path of Enterprise Digital Transformation in the Context of Digital Economy

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Abstract. Accelerating businesses' digital transformation has emerged as the key to attaining superior economic development in the setting of the rapidly expanding digital economy. Digital transformation of enterprises is not just a simple digitization of business processes and information carriers but focuses on in-depth integration of diverse digital technologies, to facilitate the essential change of the organization from an internal operational framework to an outward interaction paradigm. This article aims to examine the implications of enterprise digital transformation and its importance, while also providing a detailed analysis of the obstacles currently faced in the digital transformation process. These challenges include small and medium-sized enterprises having difficulty taking a step forward in transformation due to limited resources, the uneven progress of transformation due to regional economic development, and the general lack of supply of key transformation factors such as capital, technology, and professional talents. Based on this, this paper further explores and proposes possible realization paths for digital transformation. Together with offering a reference framework for businesses' sustainable digital development, these pathways seek to offer useful strategic advice for digital transformation of enterprise.

Keywords: Digital economy, enterprise digital transformation, path analysis.

1. Introduction

China has joined the digital age as a result of advancements in science and technology worldwide. Automation and artificial intelligence technologies take over as the primary means of production, while data emerges as a new factor of production. "It is necessary to accelerate the development of the digital economy and promote the deep integration of the digital economy and the real economy," according to the report of the Communist Party of China's 20th National Congress [1]. One of the main proposals for the "14th Five-Year Plan" period is to "activate the potential of data factors, promote the construction of cyber power, accelerate the construction of a digital economy, a digital society, and a digital government, and use digital transformation to drive the overall transformation of production methods, lifestyles, and governance methods." The "14th Five-Year Plan" proposes to give full play to the advantages of massive data and rich application scenarios, empower the transformation and upgrading of traditional industries, and take digital transformation as an important strategic goal for future development [2]. Digitalization is the core driving force for the development of a modern social economy and provides new ideas for enterprise development. Therefore, most companies at the forefront of industry technology have begun digital reforms to fully seize digital development opportunities to enhance the overall strength of the company and industry competitiveness to achieve long-term stable development.

The analysis of each component is somewhat dispersed, and the majority of pertinent research on corporate digital transformation is integrated with other elements like supply chain management, high-quality employment or company profitability, management structure, etc. Enterprise digital transformation is not only a process of applying new technologies, optimizing processes, and improving efficiency but also a comprehensive strategic upgrade and model innovation, which is a relatively difficult and complex process. Enterprise digital transformation is an epoch-making breakthrough and innovation, lacking perfect supporting measures and rich experience, and needs further exploration. Therefore, the purpose of this article is to examine the state and difficulties of enterprise digital transformation in light of pertinent research, investigate potential avenues for digital

transformation based on this, evaluate and suggest pertinent tactics, and offer references for the long-term growth of businesses.

2. The Connotation and Necessity of Enterprise Digital Transformation

The process of digital transformation is intricate and involves several developmental stages. In order to better manage and control data, businesses first digitize different information resources into binary digital formats for appropriate reading, storage, and transmission. Digitalization is further deepened at the enterprise operation level, which means comprehensively digitalizing business processes through the application of digital technology to achieve process digitization [3]. Based on digitization and digitalization, digital transformation implements extensive and thorough modifications to the enterprise's business model, operation model, functional structure, and business processes. It is not limited to simply digitizing business and information, but also emphasizes the fundamental transformation of enterprises from internal operations to external interactions through the integration of information, computing, communication and connection technologies [4]. By introducing new digital technologies, enterprises can optimize information and business processes, help enterprises adapt to the digital economic environment, and thus create new business models and improve core competitiveness.

Enterprises are facing fierce market competition in the digital economy era, and digital transformation has become a key-way to improve productivity and operational efficiency. Some studies have pointed out that digital transformation can improve production efficiency by optimizing resource allocation, thereby improving corporate ESG performance, and at the same time bring increasing marginal effects to the improvement of corporate sustainable development, indicating that digital transformation has become an important driver of high-quality development of enterprises and an important breakthrough in resolving the contradiction between economic growth and environmental governance [5]. By introducing modern information technology, enterprises can digitally transform traditional business models and operational processes, realize real-time transmission and efficient processing of information, eliminate information islands, and promote collaboration among departments. For example, the enterprise resource planning (ERP) system can integrate business modules such as finance, production, sales, and human resources to achieve unified management and optimal allocation of resources. In addition, enterprise digital transformation can enhance and improve customer experience. Big data analysis technology helps enterprises gain a deep understanding of consumer behavior preferences and market trends, guide product development and optimization, and formulate personalized product recommendations and promotion strategies for customers, enhance marketing effectiveness, and improve user satisfaction and loyalty. The application of e-commerce platforms and social media enables enterprises to directly interact with customers, collect feedback, and meet the diverse needs of customers. Digital transformation can also promote business model upgrades. Traditional business models are no longer able to cope with the rapidly changing market environment. Digital transformation enables enterprises to integrate traditional industries with Internet thinking and create new business opportunities and profit models. For example, by introducing new business models such as the sharing economy and cross-border cooperation, enterprises can expand new business areas and sources of income. Digital transformation also promotes cooperation and innovation among enterprises, forming a closer industrial ecological chain and value chain. Therefore, digital transformation is not only an inevitable choice for enterprises to adapt to market changes but also a key strategy to achieve long-term sustainable development.

3. Challenges Faced by Enterprise Digital Transformation

3.1. Digital Transformation of Small and Medium-sized Enterprises is Still in Its Preliminary Stages

Over 90% of China's economy is made up of small and medium-sized businesses, which are vital to the country's economy because they spur economic expansion, create a large number of job opportunities, and foster innovation and technical advancement. Small and medium-sized businesses face more obstacles on their path to digital transformation, have a lower economic scale, fewer financing options, and poorer risk resistance than major corporations. As of 2020, only about 32.9% of small and medium-sized enterprises have implemented digital transformation strategies, and nearly half of small and medium-sized enterprises have no digital transformation plans. As of 2021, about 44.8% of small and medium-sized enterprises have implemented digital transformation strategies, which has increased compared with 2020, but still less than half [6]. Enterprises that have implemented digital transformation strategies also have problems such as unclear understanding and inaccurate positioning [7]. They still need to combine their development characteristics, make full use of their advantages and policy support, and promote the digital transformation of enterprises. In summary, China's small and medium-sized businesses are still in the early phases of their digital transformation, and this process needs to be accelerated.

3.2. Large Regional Differences in Enterprise Digital Transformation

From east to west, China's economic progress has been gradually eroding, and regional differences in business digital transformation are also rather noticeable. According to data on the proportion of small and medium-sized enterprises that have undergone digital transformation in different regions, the eastern region (37.2%) is the highest, followed by the central region (33.7%), the northeastern region (29.6%), and the western region (28.3%) is the lowest [6]. The obvious differences in the proportion of digital transformation of enterprises in different regions are the result of the combined effect of multiple factors. For the eastern region, its development advantages mainly lie in three aspects. First, there is a significant geographic advantage for the development and use of digital technology since the digital infrastructure is more comprehensive than in the central and western regions. Second, local governments in the eastern area have stronger industrial support policies than those in the central and western regions, which aids in advancing businesses' digital transformation. Third, the eastern region's market competition mechanism is more comprehensive, which can encourage businesses to undergo digital transformation [8]. For the Western region, the lagging digital infrastructure construction and the imperfect digital skills training system are important factors hindering its digital development [9].

There are also differences in the digital transformation process among urban agglomerations. According to data, the country's largest percentage of digitally transformed businesses are found in the Pearl River Delta, the Yangtze River Delta, and the Beijing-Tianjin-Hebei metropolitan agglomerations. Among them, the Yangtze River Delta urban agglomeration has the highest proportion of digital transformation, followed by the Pearl River Delta, and the Beijing-Tianjin-Hebei is the lowest. The proportion of digital transformation of enterprises in the Chengdu-Chongqing and Yangtze River Middle Reaches urban agglomerations is relatively low [6]. The performance of digital transformation of enterprises in different urban agglomerations is related to their market maturity, the degree of digital infrastructure construction, and the reserve of digital talents. In addition, the three urban agglomerations have developed local manufacturing, trade, and Internet industries, which give them advantages in digital transformation.

3.3. Digital Transformation Lacks Support From Key Elements

3.3.1 Insufficient supply of funds

The digital transformation of enterprises requires a large amount of capital investment, including the purchase of software and hardware related to digital infrastructure, as well as the cost of

continuing to operate, maintain and upgrade digital systems after the initial transformation is completed. Small and medium-sized enterprises generally have limited financial strength and insufficient financing capabilities [6], making it difficult for them to bear the initial costs of digital transformation, and are prone to funding gaps in the later stages of transformation. The Chinese government's financial support for enterprises needs to be improved [10]. There is a lot of space for development in terms of fiscal expenditure and scale, based on the total number of businesses that the government supports or the amount of financing. Additionally, there are extremely few and inadequate papers released by the government and the appropriate tax and fiscal authorities to assist businesses in their digital transformation. The equivalent size and total amount only make up a small percentage, notwithstanding the rapid growing pace.

3.3.2 Lack of technical means

China has a wide range of digital technology applications, but there are still shortcomings in the basic research of core technologies. Enterprises often face the problem of lacking a suitable technological platform during the transformation process. Digital platforms have the potential to improve enterprise integration and connection, remove prior obstacles to communication, and compensate for the lack of resources and competencies that businesses have during the digital transformation process. It is challenging to get relevant resources and robust assistance through the platform, though, as the majority of businesses are still in the early stages of digital transformation and are only beginning to explore supply chain platform applications. Second, a significant obstacle to businesses' digital transformation is a lack of data integration and processing capabilities. For the purpose of making decisions and running the business, it is essential to know how to efficiently arrange the production and operation data inside the company as well as the external market and user data and extract useful information from them. At present, many enterprises still have obvious shortcomings in this regard, resulting in the inability to give full play to the value of data. In addition, data security and stability are also issues that cannot be ignored in the digital transformation of enterprises. Enterprises need to strengthen the construction of technical security systems to ensure the security and privacy of data [11].

3.3.3 Lack of digital talents

The key factor in enterprise transformation and upgrading lies in the cultivation and introduction of digital talents. The talents needed should not only have traditional management capabilities but also data statistics and application capabilities [12]. The first response method chosen by most enterprises is to train existing personnel and management. However, due to the lack of a complete mechanism for talent training, it is difficult for employees to receive comprehensive and systematic digital training. In addition, the digital foundation of the traditional personnel of the enterprise itself may be relatively weak, resulting in a long training cycle and poor training results. The most direct source of high-end compound talents is through campus recruitment of high-level colleges and universities. The quantity and caliber of compound digital talents being developed by my nation's universities and research institutions, however, fall well short of the workforce demands of businesses undergoing digital transformation. One major issue impeding businesses' digital transition is the dearth of highly skilled compound digital talent [13]. The demand for digital talents such as cross-domain integrated talents and data-driven talents continues to grow, bringing challenges to enterprises.

4. Possible Paths to Achieve Enterprise Digital Transformation

The above analysis shows that enterprises generally face problems in technology, talent, capital, and institutional environment during the transformation process, which makes the digital transformation of enterprises difficult to a certain extent. In this regard, this article proposes the following feasible paths.

First, enhance the awareness of digital transformation and clarify the transformation goals. At present, some enterprises have not yet formulated digital transformation plans and have a weak

awareness of digital transformation. Traditional enterprises have an insufficient understanding of the connotation, necessity, and importance of digitalization and have failed to break away from the traditional business management model [10]. Even if some enterprises have a strong desire to promote digital transformation, they often find it difficult to take the first step in digital transformation due to the lack of clear strategic goals and comprehensive path planning by the management. In the process of digital transformation of enterprises, senior leaders must establish a digital mindset and realize the significance of digital transformation to the long-term development of enterprises [14]. They should actively learn from the successful experiences of other enterprises, use examples as support, and combine their own enterprise situation to formulate specific digital strategic goals, including improving operational efficiency, optimizing customer experience, and enhancing data-driven, etc., to ensure that these goals are closely connected with the overall enterprise strategy and formulate reform plans that are in line with the long-term development of the enterprise.

Second, strengthen the protection of information security. Enterprises must attach great importance to data security and privacy protection during the digital transformation process [11]. Enterprises should implement multi-level data security measures, such as data encryption, network firewalls, and regular system security audits to prevent unauthorized access and malicious attacks. Regular system security audits and vulnerability scans can timely discover security risks and effectively reduce security risks. Strict privacy protection policies should also be formulated and implemented to clarify the specifications for data collection, use, and storage, including the purpose of use, retention period, and access rights of user data, and ensure that internal employees and external data users comply with relevant regulations. Implementing a transparent data processing process and collecting and using data with the user's consent can effectively prevent data leakage and abuse. Through these comprehensive measures, enterprises can effectively protect data security and user privacy while promoting digital transformation, and maintain the reputation and compliance of the enterprise.

Third, strengthen the training and reserve of digital talents. With the development of the digital economy, the gap in digital talent continues to increase [13], and the cultivation of digital transformation talent is the key. Education is the foundation for the training of digital talents. Colleges and universities should appropriately increase the teaching of digital-related subjects, such as programming, data analysis, and artificial intelligence. Practical projects and internship opportunities can be introduced to allow students to apply their knowledge in real scenarios and improve their practical and problem-solving abilities. Skill training is the key to improving digital talents. Enterprises need to strengthen the training of employees' digital skills by organizing internal and external training courses, using online learning platforms, and participating in actual projects to improve the comprehensive digital capabilities of enterprise employees. The government should also introduce corresponding systems and policies to provide guarantees for the training of digital talents and the implementation of policies.

5. Conclusion

The digital economy is now a vital engine propelling the steady expansion of the economy of China. The only way to attain high-quality economic development in the digital age is to speed up the process of digital industrialization and industrial digitalization and encourage the close integration of the digital and real economies. Businesses must implement digital transformation as a fundamental component of the market economy, as this is a crucial tactic for achieving steady, long-term growth. Based on the explanation of the connotation and necessity of digital transformation, this article focuses on analyzing the practical challenges of starting difficulties, regional imbalances, and insufficient support for key factors such as capital, technology, and talents in the transformation process, as well as the series of implementation paths that enterprises can take for digital transformation in the future development process. It is thought that by thoroughly promoting digital transformation, enterprises can explore clear transformation goals and formulate detailed

transformation plans based on their positioning, to achieve long-term and stable strategic development. Digital transformation will also bring broader development space and richer economic returns to enterprises.

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