

Customer Digital Transformation and Supplier Enterprise Investment Efficiency

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Abstract

With the advent of the era of digital economy, digital transformation has injected new vitality into enterprises. The report of the 20th National Congress of the Communist Party of China stressed that "the digital economy and the real economy should be deeply integrated in order to build digital industrial clusters with international competitiveness". As an important external stakeholder of enterprises, customers' strategic behavior has an important spillover effect on enterprises, affecting their investment and financing decisions. However, few studies have focused on the impact of partners' (such as customers') digital transformation on suppliers' investment decisions. This project selected China's A-share listed companies from 2007 to 2021 as the research object, used text mining and analysis technology to construct digital transformation indicators, investigated the impact of customer enterprises' digital transformation on supplier enterprises' investment efficiency and its mechanism according to the supply chain contagion effect theory, and further discussed the heterogeneity of property rights and customer concentration on the two. This project helps to broaden the research on the economic consequences of customer strategic choice on supplier enterprises from the perspective of supply chain spillover effect, and provides inspiration for supply chain enterprises how to bring new development opportunities with the help of digital transformation to improve their investment decisions and maintain long-term competitive advantages.

Keywords

Digital Transformation; Supply Chain; Investment Efficiency.

1. Introduction

1.1. Research Background

With the booming development of mobile Internet, cloud computing and smart technologies, digital technologies, such as artificial intelligence and blockchain, have become one of the key factors in promoting economic development, enhancing competitiveness in all sectors of the economy, building emerging markets and ensuring overall sustainable growth. The 14th Five-Year Plan and the 2035 vision point out that digital transformation should drive the transformation of production mode, accelerate the transformation of digital transformation and development, cultivate new driving forces and promote new development. The report of the 20th National Congress of the Communist Party of China proposed to accelerate the construction of digital China, accelerate the development of digital economy, promote the deep integration of digital economy with the real economy, and build digital industrial clusters with international competitiveness. Therefore, at present, more and more studies focus on the integration of digital transformation and real economy, pointing out not only the important impact of digital transformation on national and regional economic development from the macro level, but also the key role of digital transformation on enterprise development from the micro level (Wu Fei et al.,2021). The digital transformation of enterprises can not only reduce

their own operating costs, expand overseas investment, improve innovation ability, improve stock liquidity and total factor productivity, but also have an impact on the operating ability and business performance of their core enterprises. With the deepening of economic globalization, enterprises in the supply chain have formed a good cooperative relationship. Enterprises play their respective roles in the supply chain, achieve and complement each other, and gradually evolve into a "weal and woe" interest alliance. The "14th Five-Year Plan" proposes to enhance the modernization of the industrial chain and supply chain, do a good job in the supply chain strategy design and precise policies in different industries, and form a more innovative, higher added value, safer and more reliable industrial chain and supply chain. In order to maintain a good and stable supply chain relationship, customers and suppliers will maintain close contact, so the strategic behavior of customers has an increasing impact on the decisions of suppliers. In recent years, researches have gradually shown that the transparency of customer information, the quality of customer prospective information and customer earnings information in the supply chain will affect the investment efficiency of supplier enterprises. However, the existing researches are limited to the spillover effect of customer information. There is still a lack of research on whether customer strategic behavior will affect enterprise investment decision, especially the impact of customer digital transformation on enterprise investment decision. China is facing the economic background of implementing the new development concept, striving to promote high-quality development, and promoting the construction of a new development pattern. In order to adapt to the economic environment, enterprises should increase innovation and enhance technology and product research and development to effectively match market demand, which requires enterprises to follow the digital development trend and make more effective investment decisions. The theoretical research on enterprise investment efficiency points out that digital transformation can improve enterprise investment efficiency by alleviating the information asymmetry between enterprises and the outside world and reducing agency costs. However, most relevant researches focus on the direct impact of enterprises' digital transformation on their own business performance, but ignore the impact of partners' (such as customers) digital transformation on suppliers' investment efficiency.

1.2. Research Significance

1.2.1. Theoretical Significance

(1) It helps to broaden the economic consequences of enterprises' digital transformation. This paper will help to broaden relevant research on the scope of impact of digital transformation on the real economy. Previous studies have mainly focused on the impact of digital transformation on the business performance of enterprises themselves, ignoring the contagion effect of digital transformation on their partners. (2) The factors that help to broaden the investment efficiency of enterprises Investment decision-making behavior of enterprises has been widely concerned by the academic circle, because the investment efficiency of enterprises is related to the business performance and enterprise value. Previous studies have shown that there are many and complex factors affecting the investment efficiency of enterprises. Based on the perspective of external partners, this project will help to broaden the relevant research on the factors affecting the investment efficiency of enterprises. (3) It will help to enrich the relevant literature on spillover effects between suppliers and customers From the perspective of supply chain spillover, this project considers the interaction between customers and suppliers, examines the impact of customers' digital transformation on suppliers' enterprise investment efficiency, and helps to enrich the relevant literature on spillover effects between suppliers and customers.

1.2.2. Practical Significance

First, digital transformation brings new opportunities for the development of enterprises. This

paper will help promote the government and relevant departments to encourage enterprises to comply with the development trend of digital economy and provide corresponding policy support and subsidies, so as to promote the economic development of the whole industry and provide inspiration for the effective allocation of economic and social resources and the improvement of supply chain cooperation efficiency in China. Promote China to accelerate the construction of a new development pattern with domestic circulation as the main body and domestic and international double circulation promoting each other, promote the high-quality development of the digital economy and achieve common prosperity. Second, the project's in-depth study of the spillover effect brought by the cooperative relationship between supply chain enterprises helps to prompt enterprise managers to make use of the cooperative relationship between supply chain enterprises, exchange and learn more, and acquire sufficient knowledge and experience to maintain their own growth advantages, improve the efficiency of capital allocation and the position of global value chain.

2. Literature Review

2.1. Economic Consequences of Digital Transformation

Building a digital China is a national strategy in the new era, and developing the digital economy is a key measure to implement the major national strategy. Existing studies have shown that digital transformation not only has an important impact on national and regional development from the macro level, but also plays a key role in the development of micro enterprises. Enterprise digital transformation is an investment in itself based on long-term development perspective. Most scholars believe that enterprise digital transformation can bring positive impact on enterprise operation. For example, digital transformation significantly reduces the dependence of enterprises on large customers, and then promotes the continuous improvement of the efficiency of enterprise resource allocation; Enterprise digital transformation can reduce the cost stickiness of enterprises by strengthening the substitution of technology for labor, reducing the opportunistic behavior of management, and accelerating the efficient operation of supply chain resources. In the capital market, Wu Fei et al. (2021) pointed out that the digital transformation of enterprises can significantly improve the level of stock liquidity. Relevant theoretical studies on enterprise innovation point out that digital transformation can support enterprises' business model, product and service innovation. In terms of product performance, digitalization can help improve enterprise capability, promote new product development and improve innovation performance. Enterprise digital transformation and the application of big data analysis means have important potential value in improving information transparency, developing customer demand, market segmentation, assisting decision support, and promoting business model, product and service innovation. Relevant research also points out that enterprises are faced with challenges in the process of digital transformation, such as transformation cost and transformation uncertainty. To sum up, existing studies have demonstrated the economic consequences brought by enterprises' digital transformation from both positive and negative aspects, but they mainly focus on the impact of digital transformation on enterprises' own business decisions, while few literatures pay attention to the contagion effect brought by enterprises' digital transformation on the supply chain, which also provides an opportunity for this project.

2.2. Influencing Factors of Enterprise Investment Efficiency

At present, China resolutely implements the "steady investment" measure of precision investment and effective investment. Efficient investment decisions are not only the main driving force for the company's own growth, but also have great significance for the technological innovation and creativity enhancement of the entire industry. In order to comply with the economic background of sustainable and high-quality development, enterprises are

increasingly attaching importance to their business performance and investment decisions. Previous studies have shown that the investment efficiency of enterprises is affected by multiple internal and external factors, including corporate strategic decision-making, information disclosure, incentive mechanism, social relations, institutional environment, monetary policy and so on. For example, the higher the innovation input, the lower the earnings management degree, the lower the investment efficiency index value, and the higher the investment efficiency; There is a dynamic effect between information disclosure and investment efficiency. The higher the accuracy of information disclosure, the more investment underinvestment can be alleviated. The implementation of employee stock ownership plan will improve the quality of internal control, and then alleviate the phenomenon of insufficient capital investment; Social responsibility can improve the investment efficiency of enterprises by alleviating the information asymmetry between enterprises and the outside world and reducing agency costs; The stronger the uncertainty of economic policy, the more sensitive enterprises are to the competitive pressure of product market. Product market competition and economic policy uncertainty promote each other and enhance the investment efficiency of enterprises. Loose monetary policy can improve the investment efficiency of underinvested enterprises by increasing the availability of credit and reducing the uncertainty of cash flow, but at the same time, it will reduce the investment efficiency of over-invested enterprises. In addition, studies have gradually shown that the customer group in the supply chain has an increasingly important impact on the investment decision of enterprises, and even determines the survival and development of enterprises. For example, a high concentration of major customers will make an enterprise face the risk of dependence on major customers, and the management will tend to make conservative decisions, thus reducing the investment efficiency of the company, which is mainly manifested in the increase of the degree and probability of underinvestment. Chen et al.(2019) found that the higher the quality of customers' forward-looking information disclosure, the lower the degree of information asymmetry between customers and suppliers, and the higher the investment efficiency of suppliers. However, few studies have focused on the impact of customers' strategic decisions on enterprises' own investment efficiency from the perspective of supply chain spillover effect.

2.3. Supply Chain Spillover Effect

Previous studies on supply chain spillover effect mainly focused on the impact of supply chain spillover effect on corporate stock price, investment decision, cash holding decision and securities analysts. With the continuous refinement of the division of labor in enterprises, the relationship between upstream and downstream enterprises in the supply chain has become increasingly close. As an important external stakeholder, customers have an increasing influence on various activities of enterprises. Therefore, more and more studies focus on the spillover effect between upstream and downstream enterprises in the supply chain. For example, there is a cooperative relationship between customers and suppliers in the vertical relationship of the supply chain, so that the behavior or characteristics of one firm will spread along the supply chain and affect other firms; The better the customer earnings performance, the more it can promote the innovation investment of the supplier enterprise; Isaksson et al.(2016) pointed out that customer innovation can significantly and positively influence supplier innovation; The supply chain information spillover effect will lead to the impact of key customer earnings management on the investment of supplier enterprises, the positive earnings management of major customers will lead to the over-investment of supplier enterprises, and the negative earnings management of major customers will lead to the underinvestment of supplier enterprises. Li et al.(2018) From the perspective of pressure, external market stakeholders (customers, suppliers and competing enterprises) will stimulate core enterprises to continuously develop new products to ensure their competitive advantages. At present, a small number of studies focus on the impact of customer digital transformation

on supplier enterprises. From the perspective of supplier innovation, customer digital transformation will force supplier enterprises to respond to customer innovation demand and then improve their own innovation level. The digital transformation of enterprises can improve the efficiency of internal and external resource allocation and promote the status of global value chain. These studies start from the relationship between upstream and downstream enterprises in the supply chain, and verify the spillover effect between customer enterprises and supplier enterprises. To sum up, existing studies have examined the impact of customer firms' digital transformation on the economic consequences of supplier firms and the impact of customer behavior on supplier firms' investment efficiency, but there is still no study linking the trend of customer firms' digital transformation with supplier firms' investment efficiency. Based on the perspective of supply chain spillover effect, this paper discusses the impact of customer digital transformation on supplier enterprise investment efficiency, in order to clarify the relationship between the two and the specific economic consequences.

3. Research Analysis

Based on resource dependence theory and information transfer theory, this paper uses text mining and analysis technology to construct digital transformation indicators. Based on supply chain contagion effect theory, this paper examines the effect and mechanism of customer enterprise digital transformation on supplier enterprise investment efficiency, and further discusses the heterogeneity of property rights and customer concentration on the two. The digital transformation of customer enterprises can improve the investment efficiency of supplier enterprises through two paths. On the one hand, the digital transformation of customer enterprises can improve the investment efficiency of supplier enterprises by alleviating the information asymmetry in the supply chain. On the other hand, customer digital transformation has a spillover effect, and supplier enterprises respond to customer strategic decisions to carry out digital transformation and then improve the investment efficiency of enterprises. Therefore, through theoretical analysis and empirical test, this project studies the impact of customer digital transformation on enterprise investment efficiency by alleviating information asymmetry in supply chain and promoting enterprise digital transformation.

Customer concentration represents the degree of supplier's dependence on customers. The higher the concentration of customers, the more important it is for suppliers to make strategic decisions and the more motivated they are to cater to the economic consequences of their customers' digital transformation. Therefore, the higher the customer concentration, the more obvious the impact of customer digital transformation on promoting supplier enterprise digital transformation, and thus improving enterprise investment efficiency.

The property rights of supplier enterprises may be an important factor for the difference in the impact of customers' digital transformation on their investment efficiency. Compared with private enterprises, state-owned enterprises have more advantages in terms of preferential policies and institutional guarantees, and their scale is larger and their financial strength is stronger. Therefore, the difference between state-owned enterprises and private enterprises may lead to the heterogeneity of the impact of customer digital transformation on enterprise investment efficiency. State-owned enterprises have strong bargaining power, so they face less pressure from customers and are less active in responding to customers' innovation needs. In contrast, private enterprises are more worried about losing customers, so the impact of customers' digital transformation on their investment efficiency may be more significant.

4. Conclusion

China is facing the macroeconomic background of supply-side structural reform, in order to create a new impetus for economic development to seek a path, call on enterprises to enhance

technology and product research and development to achieve industrial structure upgrading and transformation, effectively match market demand, which undoubtedly requires enterprises to comply with the trend of digital development, more effective investment decisions. In recent years, there have been more and more researches on enterprises' digital transformation, but few literatures have studied the impact of enterprises' digital transformation on suppliers from the perspective of supply chain relationship. In addition, in a series of research literatures on corporate investment efficiency, most of them start from the perspective of corporate internal governance and external environment uncertainty, and rarely consider the impact of corporate customers' strategic behavior on their investment efficiency. This paper examines the impact of customer digital transformation on enterprise investment efficiency, and intends to broaden the relevant research fields to make up for the shortcomings of existing literature. This paper proves that the digital transformation of customer enterprises may improve the investment efficiency of supplier enterprises by alleviating the information asymmetry in the supply chain and promoting the digital transformation of supplier enterprises, and may also affect the investment efficiency of supplier enterprises through other ways. The conclusion of this paper is helpful to improve the investment efficiency of enterprises and promote the high-quality development of China's digital economy, and it is helpful to suggest enterprises to pay attention to the digital trend and supply chain relations, and find new opportunities for their own development. At the same time, this paper also suggests that the government and relevant departments need to provide policy support and subsidies for enterprises, encourage enterprises to comply with the trend of digital development, support enterprises across the industry to carry out digital transformation, and ensure that Chinese enterprises can improve investment efficiency and maintain innovation vitality in the wave of industrial structure adjustment and upgrading. This paper helps to enrich the impact of digital transformation on micro enterprises. The digital transformation of customer enterprises is conducive to driving supplier enterprises, and even has a contagion effect in the upstream and downstream supply chains, which helps to enrich the range of factors affecting the investment efficiency of enterprises. Enterprise investment decision has been widely concerned by academic circles, but few studies have examined the impact of external stakeholders (such as customers) on enterprise investment efficiency, which is helpful to enrich the theory of supply chain spillover effect. This paper discusses the impact of customer enterprise digital transformation on supplier enterprise investment efficiency from the perspective of supply chain relationship.

Compared with the existing literatures at home and abroad, the innovation of this paper may lie in the following two aspects.

(1) Innovation in the research field

In recent years, there have been more and more researches on enterprise digital transformation, but few literatures have studied the impact of enterprise digital transformation on supplier enterprises from the perspective of supply chain relationship. In addition, in a series of research literatures on corporate investment efficiency, most of them start from the perspectives of corporate internal governance, financing constraints and external environment uncertainty, and rarely consider the impact of corporate customers on investment efficiency. This project examines the impact of enterprise digital transformation on supplier enterprise investment efficiency, and intends to broaden the relevant research fields to make up for the shortcomings of existing literature.

(2) Research perspective innovation

Based on the perspective of supply chain information spillover effect, this project makes an in-depth study of the supplier-customer relationship and examines the spillover effect of digital transformation among enterprises in the supply chain, which not only helps to enrich the theory of supply chain spillover effect, but also provides new evidence to explain the

relationship between customer behavior and corporate financial decision-making in the supply chain.

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