



Can Digital Transformation Promote the Enhancement of Corporate Value?

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Abstract. In the era of the digital economy, digital transformation has become an inevitable choice for enterprises to adapt to new environments, address new challenges, and seize new opportunities. Empowering enterprises with digital technologies have become a typical feature of technological revolution. How companies benefit from digital transformation to enhance corporate value has become an increasingly important issue of concern in both academia and practice. Based on the measurement of enterprise digital transformation and corporate value, this study, leveraging the theories of value chain cost management and signal transmission, utilizes data from Chinese manufacturing A-share listed companies from 2015 to 2020 as samples. The aim is to deeply explore the intrinsic relationship between digital transformation and corporate value. Empirical results show that enterprise digital transformation significantly enhances the value of manufacturing enterprises. This study enriches the related research on digital transformation for manufacturing enterprises, not only contributing to an objective understanding of the impact of digital transformation on the development of manufacturing enterprises, but also providing important insights and empirical evidence for how manufacturing enterprises can seize the opportunities presented by digital transformation to enhance corporate value.

Keywords: Digital Transformation; Manufacturing Industry; Corporate Value

1 Introduction

In the digital economy era, digital empowerment has become a typical feature of technological revolution, providing enterprises with a new development path. Digital technology can effectively improve the internal operational efficiency of enterprises, enhance their information acquisition and processing capabilities, comprehensively improve the overall capabilities of enterprises, and thereby enhance corporate value. Therefore, in the new economic normal, to keep pace with the times, enterprises must actively carry out digital transformation. The integration of big data and manufacturing is one of the important features of "Made in China 2025," and manufacturing industry is becoming an important engine for the stable growth of the national economy, currently undertaking the primary task of digital transformation. However, in the practical

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application process, the research on the impact of digital transformation on the value of manufacturing enterprises is still in the preliminary exploration stage, and most studies focus on the short-term performance impact of digital transformation on enterprises (Ciampi et al, 2021)³. In this context, it is necessary to further analyze the impact of digital transformation on the value of manufacturing enterprises and its internal mechanism, and then clarify the direction for policy optimization and corporate behavior.

Existing relevant research at home and abroad mainly focuses on the theoretical benefits of digitalization at the macroeconomic and meso industrial levels, as well as the exploration of output benefits at the micro enterprise level. David and Grobler (2020) found that the more advanced digital information technology is, the more significant the effect of improving macroeconomic growth rate is. At the same time, digital transformation of enterprises can help reduce operating costs, provide development momentum for operations and production (Abouzededan et al., 2013), and improve enterprise efficiency by influencing innovation activities (Agrawal and Goldfarb, 2008). Some scholars focus on the theory of digital transformation benefits and enterprise model transformation, mainly analyzing the empowering effects of digital transformation on enterprise efficiency, cross-border integration, organizational restructuring, and competition from a value dimension (Xiao, X. and Qi, Y.D.,2019). Digital transformation not only has a significant impact on organizational boundaries and production methods of enterprises (Lin, L. and Lv,W.D.,2019), but also has a promoting effect on business model innovation (Qi, Y.D. et al., 2019)⁵. Currently, research related to digital transformation mainly focuses on macroeconomic and industrial digital perspectives, with few literature conducting theoretical analysis and empirical testing on the impact mechanism of digital transformation on enterprise value enhancement.

In light of this, this paper aims to investigate whether digital transformation in manufacturing enterprises can enhance corporate value. On a theoretical level, it reveals the impact mechanism of digital transformation in manufacturing enterprises on corporate value, providing a new perspective for research on the impact of the digital economy in manufacturing. On a practical application level, the study has significant policy implications and management insights, playing an important guiding role in promoting the digital transformation of manufacturing enterprises to enhance corporate value.

2 Literature Review and Research Hypotheses

Through the combing of existing literature, it is found that corporate digital transformation includes two levels: one is the internal mode of digital transformation, that is, enterprises adopt big data, computers, and other digital technologies to promote the transformation of internal organizational structure and business processes; the other is the external mode of digital transformation, that is, by integrating external information and digital flows, the interaction between a single enterprise or multiple enterprises gradually develops into a platform-based and industry scenario system, which greatly improves efficiency (Porter, M. E., & Heppelmann, J. E., 2014)¹. Therefore, corporate digital transformation plays a very important role in driving enterprises to reduce production costs, improve resource allocation efficiency, and optimize management.

First, corporate digital transformation helps to significantly reduce production costs and transaction costs. Digital transformation of enterprises allows for deep sharing of information and conveys positive market expectations (Loebbecke, C., & Picot, A., 2015)², thereby helping to reduce information asymmetry and transaction costs. Second, digital transformation can enhance corporate innovation capabilities. The integration of digital technology with corporate production and operation is conducive to corporate R&D investment, promoting corporate innovation capabilities, and thereby promoting the enhancement of corporate value (Branstetter, L.G, 2019)⁴, at the same time, enterprises can promote technological innovation activities through digital transformation to stimulate market competition and trigger economic growth. Third, corporate digital transformation helps to improve the capabilities of technological innovation and the improvement of management model. Corporate digitization can centralize the same and repetitive processes between different business units within the enterprise (Deloitte, A., 2015), optimize management models, fully reflect the overall picture of corporate operations, and achieve goals such as reducing costs, improving service quality and efficiency, promoting the development of core businesses, integrating resources, and achieving strategic support.

In summary, digital transformation can promote the enhancement of corporate value by changing the internal and external operational paths and business models of enterprises, promoting enterprises to accelerate technological innovation and reorganize the corporate value network, achieving increased production and efficiency. Based on the above analysis, the research hypothesis of this paper is proposed:

Digital transformation positively promotes the enhancement of corporate value.

3 Research Design

3.1 Sample Selection and Data Source

This study aims to explore the relationship between digital transformation and the value of manufacturing enterprises, selecting panel data of Chinese A-share listed manufacturing companies from 2015 to 2020, and processing the data as follows: (1) excluding ST or *ST companies; (2) excluding companies with severe data missing; (3) excluding electronic communication, artificial intelligence, and other computer-related manufacturing enterprises (such enterprises are closely related to digitalization, it is impossible to further explore the impact of digital transformation on enterprise value). After the above screening, and after the continuous variables are treated at the 1% level, a total of 6,478 observations are finally obtained. The relevant data comes from the China Stock Market Accounting Research Database and the Wind Financial Database.

3.2 Variable Selection

Digital Transformation

Based on relevant research, the ratio of IT investment to operating income is used to measure the level of digital transformation. IT investment is divided into hardware

investment and software investment. Hardware investment includes the fixed assets related to digitization in the notes to the financial statements of listed companies, including computers, communication equipment and other fixed assets; software investment includes the intangible assets related to digital economy technology, including investment in intangible assets such as network, client, management system, etc.

Corporate Value

Considering that enterprises need to obtain long-term market competitive advantages in the changing external environment, and considering the long-term nature of manufacturing development, this study chooses the Tobin's Q value as the indicator to measure corporate value, which takes into account the time value and can reflect the expectations of investors for the enterprise, not only reflecting the financial condition of the listed company but also reflecting its operational status.

Control Variables

This paper refers to relevant literature and selects enterprise size, enterprise nature, equity concentration, and enterprise listing time as control variables.

3.3 Model Construction

Considering the financial condition, market performance, operational efficiency, and other factors of enterprises, and in order to comprehensively evaluate the impact of digital transformation on corporate value, this paper establishes the following benchmark regression model:

$$TQ_{i,t} = a_0 + a_1 Digital_{i,t} + a_2 \sum Controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

$\sum Controls$ represent the collection of other control variables; ε represents the random disturbance term, i represents the enterprise, and t represents the year.

4 Empirical Results Analysis

4.1 Regression Analysis

The direct effect of digital transformation on corporate value was analyzed, and the regression results are shown in the table below. In the second column of the regression analysis, the coefficient of digital transformation (Digital) is 1.916, which has passed the significant test at the 1% level. This means that when a company's degree of digital transformation increases by 1%, the level of corporate value will also increase by 1.916%. This further confirms the significant and positive role of digital transformation in promoting the enhancement of value for manufacturing enterprises (TQ). The initial hypothesis has been validated, showing that corporate digital transformation actively promotes the growth of corporate value. This outcome not only emphasizes the critical role of digital transformation in today's business environment but also highlights the

importance of companies' implementation of digital transformation in enhancing competitiveness and ensuring sustainable development.

4.2 Robustness Test

The promoting effect of digital transformation on corporate value may exhibit a certain degree of lag, which implies that a company's efforts in digitalization may not be immediately reflected in the market. To ensure the credibility of the regression results and to account for this potential lag effect, this study has lagged the explanatory variable representing the degree of digital transformation (Digital) by one period and conducted a regression analysis anew. The analysis results, as shown in the table 1, indicate a significantly positive relationship coefficient between the degree of digital transformation (Digital) and corporate value (TQ), with the regression coefficient for Digital being 2.043. This statistical finding suggests that for every 1% increase in the company's digital transformation efforts, the market value of the company will correspondingly increase by 2.043%. This discovery reaffirms the hypothesis put forward in this paper: Digital transformation positively promotes the enhancement of corporate value.

By carefully comparing the robustness test results with the initial regression outcomes, it can be observed that the positive direction and the level of statistical significance of the core explanatory variable (Digital) remain consistent. This consistency indicates that the conclusions drawn from this study are robust and reliable, even when considering the time lag in the impact of digital transformation

Table 1. Empirical analysis results

| Variable | (1) TQ | (2) TQ | (3) TQ |
|----------------------------|----------------------|----------------------|-----------------------|
| Digital | | 1.916*** (0.000) | |
| L. Digital | | | 2.043** (2.93) |
| Age | 0.0299*** (0.000) | 0.0316*** (0.000) | 0.0109* (2.34) |
| Equity | 0.00423** (0.002) | 0.00421** (0.002) | 0.00674*** (3.51) |
| Nature | -0.144** (0.008) | -0.163** (0.002) | -0.179* (-2.45) |
| Size | -0.438*** (0.000) | -0.437*** (0.000) | -0.312*** (-12.37) |
| constant | 11.46*** (0.000) | 11.32*** (0.000) | 8.489*** (15.64) |
| <i>N</i> | 6478 | 6478 | 3253 |
| adj. <i>R</i> ² | 0.084 | 0.088 | 0.070 |

Note: Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are in brackets

5 Research Conclusions and Implications

This paper mainly studies whether the implementation of digital transformation by enterprises has a positive promoting effect on the enhancement of corporate value. Based on the theories of value chain cost management and signal transmission, through the regression and combing of relevant literature, this paper proposes the hypothesis of this article, and combines the financial report data of five years of A-share listed manufacturing companies in China for empirical analysis, drawing the following conclusions: the implementation of digital transformation by enterprises can significantly enhance corporate value. Digital transformation can help enterprises better utilize information technology and digital tools to improve production efficiency, optimize resource allocation, enhance product quality, provide data analysis and decision support, and create more value for enterprises.

The research conclusions of this paper have the following implications: First, enterprises should actively promote digital transformation to better achieve the deep integration of digital technology and various businesses. Enterprises should fully utilize advanced digital technology to mine valuable information according to their actual situation, promote technological innovation, improve operational efficiency, and reduce production and operational costs. Second, enterprises should view the impact of corporate digital transformation on corporate value from a strategic perspective. Corporate management should adopt a forward-looking strategy to actively carry out digital transformation, which will not only improve the business model and organizational model of enterprises in the short term. Third, enterprises must actively rely on digital transformation to achieve continuous innovation. In the Internet era, information spreads rapidly, and the original differentiation strategy or low-cost strategy of enterprises can be easily learned, copied, and imitated by competitors. Therefore, only continuous innovation-driven can form and maintain an unimitable competitive advantage.

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