



Impact of Enterprise Digital Transformation on the Quality of Information Disclosure: A Research Study

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Abstract. Does digital transformation provide enterprises with a new impetus for development, and can it subsequently enhance the quality of their information disclosure? This article is grounded in data spanning the national A-share market between 2014 and 2020. It employs Python for extracting digital transformation keywords from annual report information, enabling the quantification of the extent of enterprise digital transformation. Utilizing the KV measurement method to assess information disclosure quality, this study empirically investigates the influence of digital transformation on information disclosure quality. The findings of the research indicate a positive correlation between the degree of digital transformation and the quality of information disclosure. Further analysis of heterogeneity reveals that digital transformation has a more pronounced effect on information disclosure quality for non-state-owned enterprises compared to their state-owned counterparts. As a result, enterprises ought to recognize the pivotal role digital transformation plays in enhancing information disclosure quality. Similarly, the government should intensify its support for the digital transformation of non-state-owned enterprises, thus expediting their digital evolution.

Keywords: Digital transformation; Quality of information disclosure; Property attribute

1 Introduction

In recent years, propelled by cutting-edge technologies such as artificial intelligence, cloud computing, big data, and blockchain, the concept of digital transformation has gained prominence as a global imperative. Nations across the globe have unveiled comprehensive digital strategies, underpinning the rapid advancement and leadership within the digital revolution. Fueled by these strategic directives, an increasing number of enterprises are embracing the tide of digital transformation. In doing so, they're reshaping their business models and organizational frameworks while fully exploring the potential of this transformative journey.

Within this digital wave, the quality of corporate information disclosure assumes a pivotal role. It contributes significantly to upholding investor confidence, augmenting market transparency, and fostering sustainable industrial growth. This study seeks to

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deeply examine the influence of digital transformation on the quality of information disclosure in enterprises. Its objective is to unveil the profound theoretical and practical implications it holds within an ever-evolving digital business landscape.

This investigation into the impact of enterprise digital transformation on information disclosure quality not only bridges theoretical gaps but also carries profound practical significance. It contributes to the advancement of innovative information disclosure practices, enhances market efficiency, and enriches practical academic research content. Through in-depth exploration, we anticipate gaining a clearer understanding of how digital transformation shapes new paradigms for enterprise information disclosure. Moreover, this study aims to provide valuable guidance and decision-making support for relevant stakeholders.

The research endeavor holds potential to contribute substantially to the comprehension of how digital transformation shapes a new landscape for enterprise information disclosure. It's expected to offer valuable guidance and decision-making support to relevant stakeholders.

2 Research hypothesis

Digital transformation refers to the utilization of advanced digital technology by enterprises to upgrade and overhaul their products, services, and business processes, thereby fostering the high-quality development of the enterprise. However, digital transformation often entails substantial investment costs, which can lead to financial difficulties for the enterprise. In such circumstances, companies might adopt measures to enhance the quality of information disclosure as a way to communicate high-quality signals to the market and capture investors' interest¹. A strong emphasis on quality information disclosure allows investors to more accurately assess the present operational status and future growth potential of companies. Investors may come to recognize that while digital transformation could yield short-term losses, it can result in improved long-term prospects². Consequently, investors might be more inclined to extend financial support to companies undergoing digital transformation, aiding them in managing cost pressures and reducing business risks. In essence, companies engaged in digital transformation often have heightened incentives to enhance the quality of their information disclosure³.

Furthermore, digital transformation also serves to reinforce external oversight, thus compelling enterprises to enhance the quality of information disclosure⁴. Through the adept application of advanced digital technology, auditors can elevate audit efficiency and effectively curtail any potential manipulation of financial statements by management. Moreover, digital transformation tends to attract greater attention from analysts and the media. The enterprise's journey through digital transformation not only aligns with the prevailing digital era but can also generate a 'spotlight' effect, drawing more attention from analysts and the media, thereby engendering a form of social public opinion oversight⁵. This multifaceted attention and oversight collectively urge enterprises to elevate the quality of their information disclosure.

Guided by these considerations, this article proposes the hypothesis: Digital transformation can indeed substantially enhance the quality of information disclosure for enterprises.

3 Method

3.1 Sample selection and data sources

This article selects Chinese A-share listed companies from 2014 to 2020 as the research object and processes the data as follows: (1) excluding ST and PT companies; (2) Excluding financial and insurance companies; (3) Remove samples with missing data; (4) To eliminate the impact of outliers, tail reduction was performed on all continuous variables in the sample interval at the upper and lower ends of 1%. The financial data of listed companies is sourced from CSMAR and Wind databases, and the relevant annual report data is sourced from the official websites of the Shanghai Stock Exchange and Shenzhen Stock Exchange.

3.2 Variable setting

Explained Variable

Quality of Information Disclosure (KV): Kim and Verechia's (2001) study found that companies with poorer information disclosure quality have a greater dependence on trading volume information by investors. The impact of trading volume on returns, namely the KV index, is greater, and the information disclosure quality of listed companies is lower.

The model for constructing the KV index is as follows:

$$\ln|(P_t - P_{t-1}) / P_{t-1}| = \lambda_0 + \lambda \left(\frac{Vol_t}{Vol_0} - 1 \right) + \varepsilon$$

Among them, P_t and Vol_t is the stock price and trading volume of the company on day t , Vol_0 is the average trading volume of the company from 2014 to 2020. Using grouped OLS regression to obtain the annual λ Value to construct the KV index.

Explanatory variable

Digital Transformation of Enterprises: This article adopts the digital transformation measurement methodology introduced by Wu Fei et al. (2021) and Yuan Chun et al. (2021). This methodology assesses the extent of digital transformation through the analysis of word frequency statistics related to 'enterprise digital transformation' present in the annual reports of listed companies. Using Python, this study extracts annual reports from all A-share listed companies on both the Shanghai Stock Exchange and Shenzhen Stock Exchange, spanning the years 2014 to 2020. The study employs feature words categorized by Wu Fei et al. The 'Digital' indicator, with a higher value, signifies a greater degree of digital transformation within the enterprise.

Control variable.

In order to improve research accuracy, this article selected the following control variables, including company size (LnSize), debt paying ability (Lev), equity concentration (Top1), property ownership (SOE), board size (Board), earnings per share (Reps), profitability (ROA), and listing period (Age).

3.3 Model Settings

$$KV_{i,t} = \beta_0 + \beta_1 Digital_{i,t} + \sum_j \beta_j Control_{j,i,t} + \varepsilon_{i,t}$$

To investigate whether digital transformation has an impact on the quality of information disclosure of listed companies, this article constructs the above model. The explanatory variable KV in the model is an indicator to measure the quality of company information disclosure, and the explanatory variable Digital is the degree of digital transformation of the enterprise in the t-th period. This article underwent a Hausman test and conducted multiple regression analysis using a bidirectional fixed effects model that controlled for years and industries.

4 Results

4.1 Multiple regression

Table 1 shows the multiple linear regression model for the entire sample, column (1) shows the regression results of the digital transformation of the bidirectional fixed effects model on the quality of information disclosure of listed companies, and column (2) shows the results after adding control variables. The results of columns (1) and (2) show that digital transformation has a significant promoting effect on the quality of information disclosure of listed companies, and the hypothesis of this article has been verified.

Table 1. Multiple regression

| Variable | (1) | (2) | (3) | (4) |
|----------------|----------------------|---------------------|--------------------------|-------------------------|
| | KV | KV | Shorten the period KV | Panel interaction KV |
| Digital | -0.002*** (-2.73) | -0.002** (-2.31) | -0.001** (-2.13) | -0.001** (-0.81) |
| Controls | YES | YES | YES | YES |
| Constant | 1.740*** (3.35) | 4.648*** (4.24) | -3.545*** (-3.16) | 5.048*** (4.30) |
| Year | YES | YES | YES | YES |
| Industry | YES | YES | YES | YES |
| N | 10,911 | 10,655 | 8,091 | 10,655 |
| R ² | 0.131 | 0.152 | 0.108 | 0.173 |

4.2 Robust Test

This article uses multiple methods to test the robustness of benchmark regression results. Firstly, the way in which this article measures the quality of information disclosure by listed companies is largely related to the company's stock price, and the abnormal fluctuations in the stock market in 2015 are a factor that cannot be ignored. Ignoring market fluctuations may lead to biased results. Therefore, this article conducts regression analysis on data from 2016 and onwards, and the results are shown in column (3) of Table 1, The digital transformation still has a significant effect on improving the quality of information disclosure of listed companies, and the improvement effect is stronger compared to the results of the entire sample. Secondly, the classic bidirectional fixed effects model only considers two-dimensional cumulative effects, that is, the superposition of time and industry effect. However, this article introduces the interaction term of industry differences and time differences, which can reflect the differences in the effects of common factors on different individuals. The results are shown in column (4) of Table 1, and after introducing the interaction terms of industry differences and time differences, the results are still significant. The conclusion that digital transformation has a significant promoting effect on the quality of information disclosure of listed companies is robust.

4.3 Heterogeneity test

Columns (1) and (2) of Table 2 show the regression results of the heterogeneity analysis of corporate property rights. The regression impact coefficient for state-owned enterprises is not significant, while the regression coefficient for non-state-owned enterprises is significant at the 1% level, indicating that digital transformation does not significantly improve the quality of information disclosure for state-owned enterprises, but has a significant promoting effect on non-state-owned enterprises. The possible reason is that state-owned enterprises have many factors that affect the quality of information disclosure and are not sensitive to digital transformation.

Table 2. Heterogeneity test

| Variable | (1) | (2) |
|--------------|--------------------|----------------------|
| | KV | KV |
| | State-owned | Non-state |
| Digital | -0.001 (-1.48) | -0.006*** (-4.73) |
| Controls | YES | YES |
| Constant | 4.623*** (3.71) | 4.122** (2.43) |
| Observations | 8,596 | 2,059 |
| R-squared | 0.169 | 0.154 |

5 Conclusion

This article draws upon data from the national A-share market spanning the years 2014 to 2020. Utilizing Python, the study crawls digital transformation-related keywords from annual report information, thus quantifying the degree of digital transformation across enterprises. A model is subsequently established to assess information disclosure quality, and the empirical examination delves into the impact of digital transformation on this aspect. The research findings of this study highlight that digital transformation significantly contributes to enhancing the quality of enterprise information disclosure. This effect is particularly pronounced among non-state-owned enterprises.

Derived from the research findings, this article suggests the following recommendations: Firstly, enterprises should vigilantly track the trajectory of digitalization, actively fostering digital transformation. Through this, they can elevate information disclosure quality, transmit robust signals to the market, and ultimately foster sustainable enterprise growth. Secondly, non-state-owned enterprises, as a pivotal component of the national economy, often face challenges due to their relatively modest scale and limited resources for digital transformation. In light of this, the government should amplify its support for non-state-owned enterprises. Providing financial assistance and instituting preferential policies aimed at digital transformation would be instrumental in facilitating their growth.

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