Financial Engineering and Risk Management (2024)
Clausius Scientific Press, Canada

DOI: 10.23977/ferm.2024.070124
ISSN 2523-2576 Vol. 7 Num. 1

A Study on the Impact of Resources in Small and Medium Sized Industrial Enterprises on Digital Transformation: The Moderating Effect of Board Member Age Diversity

Qian Ren

School of Economics and Management, Guangxi Normal University, Guilin, Guangxi, China
1285279970@qq.com

Keywords: Enterprise resources; Age diversity of the board of directors; Digital transformation; Resource based view

Abstract: With the wave of a new round of technological and industrial revolution sweeping through, especially the widespread application of new generation information technologies such as big data, artificial intelligence, blockchain, and cloud computing, digitalization has become an important engine leading global economic and social change and promoting high-quality development of China's economy. This article examines the impact of enterprise resources in small and medium-sized industries on digital transformation through a resource-based perspective. According to the classification of enterprise resources, this article assumes that intangible assets and capabilities in enterprise resources have a positive impact on digital transformation; Tangible assets have a restraining effect on digital transformation. This study also assumes that board age diversity negatively moderates the relationship between political affiliation and digital transformation, positively moderates the relationship between profitability and digital transformation, and has a suppressive effect on the negative relationship between fixed assets and digital transformation. The sample of small and medium-sized industrial enterprises from 2004 to 2018 provided empirical scenarios for this study and supported the hypothesis of this study. This study not only contributes to the research literature on digital transformation in enterprises, providing new insights into the boundary conditions of how enterprise resources affect digital transformation, but also has important management implications for how enterprises manage resources to promote digital transformation.

1. Introduction

Digital transformation emphasizes the application of digital technology, that is, enterprises use digital technology applications to improve their production and operation systems, core business processes, and business models. With the continuous breakthroughs in key digital technologies such as artificial intelligence, blockchain, big data, and cloud computing, digital technology has given new development space and paths for current economic transformation and changes in production governance methods. However, digital transformation of enterprises is not an easy task. Faced with a series of problems such as information asymmetry, increased uncertainty, and post transformation

mismatch caused by a large amount of capital investment, enterprises often face a dilemma in their operations. Therefore, how to promote the digital transformation of enterprises is an important issue in the industry. This study mainly explores the impact of enterprise resources on digital transformation.

At present, research on the influencing factors of enterprise digital transformation mainly explores the impact of financial development, economic uncertainty, market competition environment, and policy pilot on it[2]. There is very little research on the relationship between enterprise resources and digital transformation. Firstly, digital transformation is a significant strategic decision for enterprises [3], which is closely related to the external government support, fixed assets, and profitability of the enterprise. Secondly, as the leaders of corporate strategic decision-making, executives often play an important role in identifying the transformation environment, enhancing transformation capabilities, and guiding transformation directions. As the executive team of a company, the members of the board of directors are not independent individuals, but rather "social individuals" in a chain of director network relationships. They can share core resources and transmit key information through the continuous input and dynamic transformation of social capital[4][4]. However, existing research has overlooked the boundary conditions of the relationship between board member diversity and corporate resources and digital transformation. This article mainly considers the impact of age diversity. According to the classification of enterprise resources proposed by Luo Huidao and Xiang Baohua (2005)[1], enterprise resources are divided into tangible assets, intangible assets, and capabilities. Intangible assets include skills, knowledge, relationships, culture, reputation, etc. In this article, intangible assets are measured by net intangible assets, tangible assets are measured by fixed asset ratios, and capabilities are measured by profitability. This article selects data from small and medium-sized industrial enterprises from 2004 to 2018, draws on the research of Wu Fei et al. [26], constructs digital transformation indicators, and studies the impact of enterprise resources on enterprise digital transformation and the moderating effect of board member age diversity. This study identified new driving factors for enterprise digital transformation and enriched relevant literature on digital transformation.

2. Theoretical analysis and research hypotheses

2.1. Enterprise Resources and Digital Transformation of Enterprises

The resource-based view holds that the digital transformation of enterprises is influenced by social resources such as economic resources, policy resources, information resources, and human resources. Adequate resource supply will help promote the digital transformation of enterprises. Therefore, in order to better explore the impact of resources on the digital transformation of enterprises. This article starts from tangible assets, intangible assets, and capability resources of enterprises[1], and studies the impact of small and medium-sized enterprise resources on digital transformation from both theoretical and empirical perspectives.

Previous studies have confirmed that as a form of social capital, intangible assets directly affect the acquisition, possession, and mastery of resources by enterprises. When a certain degree of intimate relationship is formed between government and enterprises, enterprises can more conveniently enjoy policy dividends, which are more reflected in financing and subsidies [5],

Previous studies have found that political connections can bring more resources to businesses, including more government aid, lower tax rates [7], and more bank loans [8]. Political connections are closely related to the digital transformation of small and medium-sized enterprises. Political affiliation refers to a special connection between enterprises and the government. Digital transformation is driven by digital technology and involves comprehensive changes in various aspects such as enterprise products and services, business processes, business models, organizational

structure, culture, etc.[9]. Political connections can have a positive impact on the digital transformation of small and medium-sized enterprises.

Firstly, from the long-term strategic perspective of digital transformation, small and medium-sized enterprises (SMEs) are generally small in scale and prone to significant strategic instability during the digital transformation process. Establishing connections with the government and obtaining external support from the government can encourage SMEs to incorporate digital transformation into their long-term and sustainable strategic behavior [10], thereby promoting digital transformation.

Secondly, from the perspective of resource endowment requirements for digital transformation, small and medium-sized enterprises generally lack resources [11], and political connections can bring more valuable assets such as government policies, internal information, funds, knowledge, protection, and opportunities to small and medium-sized enterprises[12], alleviating the multiple resource dilemmas they face in the process of digital transformation, Help enterprises overcome digital technology challenges and enhance their confidence and confidence in carrying out digital transformation. Therefore, it promotes the digital transformation of enterprises. Based on this, this article proposes hypothesis 1:

Hypothesis 1: Intangible assets have a positive impact on the digital transformation of enterprises.

Profitability refers to the ability of a company to earn profits, which is a comprehensive reflection of its marketing ability, cash acquisition ability, cost reduction ability, and risk avoidance ability. Financial analysis of enterprise profitability is mainly based on the balance sheet, income statement, and profit distribution statement, and generally analyzes the profitability of enterprises from the perspective of production and operation business profitability and asset profitability. This article analyzes asset profitability. Asset profitability is used to measure the utilization efficiency of enterprise assets, reflecting the overall investment effect. Only when it is higher than the social average profit margin, can the company's development be in a favorable position. This capability is represented by the return on total assets (net profit/average balance of total assets).

The return on total assets is the most comprehensive indicator reflecting a company's profitability. A high return on total assets indicates a strong profitability of the company, and management may abandon the narrow concept of pursuing maximum self-interest and focus on the performance of the company's digital transformation. Firstly, the stronger the profitability of a company, the more capable it is to provide financial resources to drive its digital transformation. Digital transformation is a complex system engineering with a long innovation cycle, which requires continuous financial investment from enterprises. With sufficient funds, enterprises can also invest more resources in digital transformation projects, thereby promoting the smooth progress of digital transformation.

Secondly, companies with strong profitability can provide better compensation and benefits, attract and retain high-quality talents, provide strong human resource support for digital transformation, and promote the digital transformation of enterprises.

Finally, market competition is an important engine for promoting enterprise transformation and upgrading. The reason is that the higher the degree of market competition, the smaller the competitive advantage of enterprises and the lower the profit margin. The jungle law of survival of the fittest becomes more apparent, and the motivation for enterprises to gain survival qualifications or even excess profits through transformation and upgrading becomes very strong, At this point, market competition will have a positive promoting effect on the transformation and upgrading of enterprises. The digital transformation of enterprises is the entrepreneurial process from scratch and from shallow to deep in the digital field. When the entrepreneurial orientation of enterprises is higher, it is more conducive to the digital transformation of enterprises. Enterprises with strong profitability are usually able to invest more resources in market promotion and brand building, thereby gaining a larger market share and better competitive position, improving their market competitive advantage, laying a solid foundation for digital transformation, and making them more confident in digital transformation. In

summary, this article proposes hypothesis 2:

Hypothesis 2: Ability has a promoting effect on the digital transformation of enterprises.

Tangible assets refer to a company's fixed assets and other wealth resources in the form of securities, such as factory buildings, equipment, land, other capital goods, bonds, and bank deposits. A characteristic of tangible resources is that, generally speaking, tangible assets have property rights and their value is relatively easy to measure [13]. This article selects the fixed asset ratio as the proxy variable for tangible resources [1]. This is because tangible assets are fixed assets of a company and other wealth resources that exist in the form of securities. This article mainly studies the impact of fixed assets of enterprises on digital transformation in terms of tangible assets.

Firstly, Faced with massive fixed asset basic data, diverse asset business processes, and strict asset supervision requirements, fixed asset management is a long-term and complex task. This limits competition in the core areas of enterprises and is not conducive to their digital transformation.

Secondly, digital infrastructure construction is the key to digital transformation. However, fixed asset management often requires significant investment and a long-term return cycle, which also limits the investment and action capabilities of enterprises in digital transformation. Enterprises do not have enough funds and time to invest in digital infrastructure construction, thus inhibiting their innovative investment in digital technology and limiting their digital transformation. Therefore, this article proposes hypothesis 3:

Hypothesis 3: Tangible assets have a negative impact on the digital transformation of enterprises.

2.2. The moderating effect of age diversity among board members

The resource-based view holds that an organization is essentially a collection of resources and capabilities. In order for an organization to gain competitive advantage, it must have valuable, scarce, non imitatable, and irreplaceable resources and capabilities[14]. From a strategic perspective, resources and capabilities are the key to a company. And age diversity is precisely the element that constitutes the foundation of diverse human resources. Research has shown that age diversity can lead to diversification of human resources in enterprises, which is a unique resource that can enhance corporate capabilities and enhance a company's competitive advantage[15]. Therefore, the diverse age of board members brings diversity of resources to the enterprise.

However, age represents life and career experience, as well as higher risk aversion and conservatism [16]. Age may bring conservatism and unwillingness to try new ideas. The relationship network between the government and enterprises is usually built on long-term interaction and cooperation. A board of directors with age diversity may lack sufficient government networks to obtain external support from the government. Different age groups are prone to generation gaps and lack communication and cooperation among them [17]. Therefore, boards with higher levels of age diversity may face greater communication and collaboration issues than boards with lower levels of diversity. Therefore, a diverse board of directors may lead to an increase in communication issues, thereby increasing operational risks and reducing decision-making efficiency[18]. The board of directors with age diversity may have differences in innovative thinking and adaptability. In summary, a board of directors with age diversity may reduce external government support and investment in digital resources. This suppresses the promoting effect of political connections on the digital transformation of enterprises. Based on this, this article will consider the moderating effect of age diversity among board members. Therefore, this article proposes hypothesis 4:

Hypothesis 4: The age diversity of board members has a negative moderating effect on the relationship between intangible assets and corporate digital transformation.

Directors play an important role in company supervision and decision-making. Firstly, diverse board members can integrate a larger amount of information, making decisions based on more

comprehensive information [31]. Firstly, board members of different age groups have different backgrounds and have experienced different types of positions. After long-term accumulation, some board members have already built their own social network and have resource advantages [19].

Secondly, analysis based on the perspective of resource utilization. Previous literature has shown that teams with diversity can provide more solutions when facing different types of problems in enterprises, and are more inclined to initiate a large number, scale, and variety of actions, providing more diverse resources [20].

Finally, the resource-based view holds that an organization is essentially a collection of resources and capabilities. In order for an organization to gain a competitive advantage, it must have valuable, scarce, non imitatable, and irreplaceable resources and capabilities [14]. Research has shown that age diversity can lead to diversification of human resources in enterprises, which is a unique resource that can enhance corporate capabilities and enhance a company's competitive advantage [15]. Therefore, this article proposes hypothesis 5:

Hypothesis 5: The relationship between the positive moderating ability of board members in terms of age diversity and the digital transformation of enterprises.

The diversity of the board of directors can provide managers with more management advice, as diverse board members have different backgrounds, experiences, ideas, and professional knowledge[21]. These diverse capabilities help the board of directors better respond to various challenges and opportunities [22]. The resource dependence theory assumes that the integration of board experience helps companies acquire valuable resources[23]. Older managers have more experience and can provide companies with many advantages, such as better market knowledge, effective problem-solving, and enhanced abilities[24]. A broader perspective and experience enable companies to address various expectations of stakeholders, thereby increasing the types of innovation implemented[25]. The resource dependence theory suggests that a diverse board of directors helps strengthen the relationship between a company and its customers, suppliers, and other stakeholders, so that the company can better communicate with shareholders or suppliers, thereby bringing more digital technology resources to the company. Therefore, this article proposes hypothesis 6:

Hypothesis 6: The age diversity of board members suppresses the negative impact of tangible assets on corporate digital transformation.

The research model diagram of this article is shown in Figure 1.

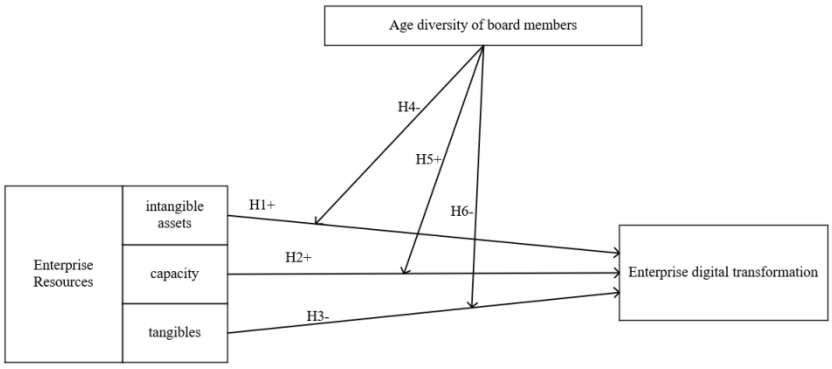

Figure 1: Model framework

3. Research Design

3.1. Sample selection

This article selects small and medium-sized industrial enterprises from 2004 to 2018 as the

research object. The main data source of this article: Based on the annual reports of listed companies, the digital transformation of enterprises is measured by constructing digital related keyword texts to crawl and organize the annual reports of listed companies over the years, and calculating the degree of digital transformation of enterprises; All data mainly comes from CSMAR database, Wind database, and CNRDS database. Drawing on the practices of existing research, the initial sample is screened according to the following criteria: excluding samples of financial industry, ST, * ST, or PT listed companies; Exclude listed companies with missing data in the database; Perform a 1% truncation on all continuous variables to eliminate the influence of extreme values of the main variable, resulting in 24891 observed values.

3.2. Variable selection

3.2.1. Dependent variable

Enterprise Digital Transformation: This article draws on mainstream practices and uses Python web scraping technology to crawl keywords highly related to "digitalization" in the annual reports of listed companies from 2004 to 2018. The logarithm of the frequency of "digitalization" related keywords is used to describe the degree of enterprise digital transformation. Among them, the keywords related to "digitalization" come from Wu Fei et al. (2021) Enterprise Digital Transformation Characteristic Word Atlas[26].

3.2.2. Explanatory variables

Intangible assets: This article measures intangible assets based on their net value. In political affiliation research, whether executives have government background is often used as a criterion to determine whether a company has political relationships. According to the definitions of Wu Wenfeng et al. (2009) and Chen et al. (2011)[6], if the actual controller, chairman, or general manager of a sample company is a former or current government official, NPC representative, party representative, or CPPCC member, we define it as a politically related enterprise, denoted as 1, otherwise it is 0.

Ability: Profitability is used as a measurement variable, and profitability is generally measured by return on total assets (ROA) or return on equity (ROE)[28]. This article draws on the indicators of literature such as Zhu Jigao (2016) and Liu Mengfei et al. (2012) to select return on total assets (ROA) to measure a company's profitability, where ROA=net profit/average balance of total assets[27].

Tangible assets: This article mainly studies the impact of fixed assets on digital transformation, so this article measures tangible assets through fixed asset ratios[1].

3.2.3. Adjusting variables

Age diversity of board members: The diversity of board members refers to the age differences among board members. We express the degree of diversity by dividing the standard deviation of the age of board members by their average age[29]. By calculating the range of diversity_age from 0.05211 to 0.24415, the larger the value, the more diverse the age.

3.2.4. Control variables

To ensure the accuracy of the empirical results, this article synthesized the practices of existing literature, and selected other important factors that may have an impact on digital transformation as control variables, including asset liability ratio (Lev), dual employment (Dual), company age (age), board size (Board), and total asset turnover (ATO)[2]. In addition, this article also controls for the

fixed year effect. Table 1 shows the definitions of other variable.

Table 1: Other variable definitions

	variable	definition
control variable	Enterprise age	Take the natural logarithm of the establishment period of the enterprise
	Asset liability ratio (Lev)	Lev=year-end total liabilities/year-end total assets
	Dual	If the chairman and general manager are the same person, it is 1; otherwise, it is 0
	Total Asset Turnover (ATO)	ATO=operating income/average total assets
	Board size	The natural logarithm of the number of directors
Instrumental variable	Equity balance	The sum of the shareholding ratios of the second to five major shareholders divided by the shareholding ratio of the first major shareholder
	Number of independent directors	Independent directors divided by the number of directors
	Number of directors	The natural logarithm of the number of directors

4. Empirical result analysis

4.1. Descriptive statistics and correlation analysis

Table 2: Descriptive statistical analysis results of related variables Decriptive statistics

	(1)	(2)	(3)	(4)	(5)
VARIABLES	**N**	**mean**	**sd**	**min**	**max**
Digital	24,891	0.380	0.811	0	5.347
PC	24,883	-0.0002	1.000	-0.668	1.497
ROA	24,891	0.0281	0.0630	-0.219	0.245
TB	24,891	0.290	0.161	0	0.849
diversity_age	24,891	0.148	0.0434	0.0521	0.244
Lev	24,891	0.460	0.194	0.0283	0.991
ATO	24,891	0.669	0.402	0.0531	2.918
Board	24,649	2.209	0.168	1.609	2.708
Dual	24,371	0.107	0.309	0	1
age	24,891	2.644	0.383	0	3.892

Table 2 shows the descriptive statistical analysis results of the relevant variables, where the mean of digital transformation is 0.380, the standard deviation is 0.811, the minimum value is 0, and the maximum value is 5.347. Table 3 shows the correlation analysis results of the relevant variables.

Table 3: Correlation Analysis Results

	Digital	ROA	TB	PC	div~age	Lev	ATO	Board	Dual	age
Digital	1									
ROA	0.086***	1								
TB	-0.215***	-0.189***	1							
PC	-0.007	0.020***	-0.005	1						
div~age	-0.033***	0.055***	-0.018***	-0.038***	1					
Lev	-0.083***	-0.456***	0.148***	0.032***	0.003	1				
ATO	0.076***	0.138***	-0.070***	-0.015**	0.042***	0.031***	1			
Board	0.024***	0.066***	0.072***	-0.017***	0.105***	0.098***	-0.027***	1		
Dual	0.009	-0.007	-0.025***	-0.025***	0.050***	-0.006	-0.032***	-0.066***	1	
age	0.064***	-0.143***	0.050***	-0.033***	-0.113***	0.117***	-0.012***	-0.091***	0.051***	1

4.2. Benchmark regression analysis

4.2.1. Testing the impact of enterprise resources, namely intangible assets, capabilities, and tangible assets on digital transformation of enterprises.

By using OLS regression method to empirically test research hypotheses H1, H2, and H3, in order to verify the validity of hypotheses H1, H2, and H3. In column (1) of Table 4, the coefficient of influence of political affiliation (PC) on digital transformation of enterprises is 0.014, which passes the significance test at the 5% level, indicating that enterprises with political affiliation are more likely to engage in digital transformation. Therefore, the hypothesis H1 in this study is supported by empirical results.

In column (2) of Table 4, the coefficient of influence of profitability (ROA) on digital transformation of enterprises is 0.075, which passes the significance test at the 1% level, indicating that the stronger the profitability of enterprises, the more capable they are of digital transformation. Therefore, the hypothesis H2 in this study is supported by empirical results.

In column (3) of Table 4, the coefficient of influence of fixed assets (TB) on digital transformation of enterprises is -0.200, which passes the significance test at the 1% level, indicating that the more fixed assets, i.e. tangible assets, the less likely the enterprise is to undergo digital transformation. Therefore, it is assumed that H3 is supported.

4.2.2. Testing the moderating effect of age diversity among board members.

Based on regression analysis, this study examines the moderating effects of board member diversity on the relationship between political affiliation, profitability, and tangible assets, as well as digital transformation, for hypotheses H4, H5, and H6. The regression results of column (4) in Table 4 indicate that there is a significant negative moderating effect of board member diversity between political affiliation and corporate digital transformation. The coefficient of the interaction term (div~age * PC) is -0.015, which passes the significance test at the 5% level. The research hypothesis H4 is supported by empirical results.

The regression results of column (5) in Table 4 indicate that the diversity of board members has a significant positive moderating effect on profitability and digital transformation of enterprises. The coefficient of the interaction term (div~age * ROA) is 0.512, which passes the significance test at the 1% level. This indicates that the more diverse the age of board members is, the more they can promote the relationship between profitability and digital transformation of enterprises. Thus, it promotes a positive relationship between corporate profitability and digital transformation, thus assuming H5 holds.

The regression results of column (6) in Table 4 indicate that the diversity of board members has a significant negative moderating effect on tangible assets and corporate digital transformation. The coefficient of the interaction term (div~age * TB) is 0.305, which passes the significance test at the 1% level. Therefore, the research hypothesis H6 is supported by empirical results.

Table 4: Benchmark Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**Digital**	**Digital**	**Digital**	**Digital**	**Digital**	**Digital**
PC	0.014**			0.015**		
	(2.26)			(2.40)		
ROA		0.075***			0.076***	
		(10.53)			(10.63)	
TB			-0.200***			-0.200***
			(-32.70)			(-32.71)

diversity_age				0.033***	0.017**	-0.065***
				(5.15)	(2.57)	(-5.14)
diversity_age*PC				-0.015**		
				(-2.41)		
diversity_age*ROA					0.512***	
					(5.76)	
diversity_age*TB						0.305***
						(8.15)
age	-0.194***	-0.184***	-0.162***	-0.190***	-0.175***	-0.185***
	(-10.76)	(-10.20)	(-9.17)	(-10.52)	(-9.69)	(-10.29)
Lev	-0.038***	-0.002	-0.011*	-0.037***	-0.002	-0.011*
	(-5.95)	(-0.26)	(-1.79)	(-5.92)	(-0.34)	(-1.72)
ATO	0.129***	0.118***	0.113***	0.128***	0.119***	0.116***
	(20.71)	(18.89)	(18.59)	(20.70)	(18.98)	(19.07)
Dual	0.030***	0.029***	0.024***	0.028***	0.028***	0.025***
	(4.87)	(4.75)	(4.04)	(4.63)	(4.58)	(4.14)
Board	0.065***	0.057***	0.076***	0.063***	0.054***	0.070***
	(10.46)	(9.07)	(12.37)	(9.98)	(8.52)	(11.38)
Constant	-0.095	-0.110	-0.121	-0.115	-0.123	-0.068
	(-0.28)	(-0.33)	(-0.37)	(-0.34)	(-0.37)	(-0.21)
Observations	24,185	24,193	24,193	24,185	24,193	24,193
R-squared	0.119	0.123	0.156	0.120	0.125	0.159
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.3. Robustness testing

Endogeneity test: The Hausman test shows endogeneity, so this article uses instrumental variable method to exclude its endogeneity. In order to avoid the potential impact of sample selection bias and omitted variable bias on the results, and to avoid the potential mutual influence between enterprise resources and digital transformation, this study uses the instrumental variable method of least squares (IV-2SLS) to alleviate endogeneity issues (Wang Yu and Li Haiyang, 2017) [30]. In the relationship between political affiliation and digital transformation, we use equity balance as an instrumental variable. The results of the least squares test show significant consistency with the hypothesis test, indicating robustness; In the relationship between profitability and digital transformation, we use the number of independent directors as an instrumental variable, and the results show robustness consistent with hypothesis testing results; In the relationship between fixed assets and digital transformation, we use the number of directors as an instrumental variable and find that the test results are basically consistent with the research hypothesis test, indicating robustness. Therefore, endogeneity can be largely excluded.

5. Conclusion

The main conclusions of this article are as follows: Political connections in intangible assets can significantly promote digital transformation of enterprises by bringing government related resources and digital resources to them; The profitability of a company will be supported by providing financial and human resources, as well as enhancing its market competitive advantage, in order to promote its digital transformation; However, tangible assets can inhibit digital transformation of enterprises due to their long cycle and complex management. The more fixed assets there are, the more difficult it is for enterprises to achieve digital transformation. In addition, our study also considered the moderating effect of board age diversity on the relationship between corporate resources and digital

transformation. Research has found that the age diversity of board members provides companies with diverse resources and enhances their ability to promote digital transformation; However, teams with diverse age groups often have a lack of experience and communication issues that lead to delayed decision-making, thereby having a negative moderating effect on the positive relationship between intangible assets and digital transformation; Finally, it has a negative moderating effect on the negative relationship between tangible assets and digital transformation. This study has made several important contributions. Firstly, this article identifies a new antecedent variable of digital transformation - enterprise resources - and contributes to the literature on digital transformation. This study examines the impact of enterprise resources on digital transformation, clarifies its impact on the digital transformation of small and medium-sized enterprises, enriches the antecedent variables of digital transformation, and contributes to the research literature on digital transformation. Secondly, this study identified a new boundary condition for the relationship between corporate resources and digital transformation - the age diversity of board members, further contributing to the literature on digital transformation. Finally, this article contributes to the literature on enterprise resources by introducing digital transformation as a new outcome variable for enterprise resources.

Our research also has certain limitations, which provide important opportunities for future research. Firstly, this article focuses on the digital transformation of small and medium-sized industrial enterprises. In the future, data from other industries can be used to further validate the viewpoint of this article. Secondly, future research can use more recent and longer span sample data to investigate whether the conclusions are meaningful. Finally, this study only considered the moderating role of board age diversity in this process, while ignoring the mediating role of corporate resources in digital transformation and other boundary conditions. In the future, more moderating variables and mediating variables can be introduced to deepen research.

References

[1] Luo Huidao, Xiang Baohua. Research on Resource Concept and Classification [J]. Scientific Research Management, 2005 (04): 99-104+57. DOI: 10.19571/j.cnki.1000-2995.2005.04.017.

[2] Lin D,Lu J,Liu X. 2014. Returnee CEO and lnnovation in Chinese High-tech SMEsJJ.lnternational Journal of Technology Management, 65(3).

[3] Nambisan S,Lyytinen K, Majchrzak A, et al. Digital innovation management: Reinventing innovation management research in a digital world[J].Mis Quarterly, 2017,41(01):223-238.

[4] Li Yang, Luo Jianzhi. Director Network and Digital Transformation of Enterprises: Impact Effects and Channels of Action [J/OL]. Modernization of Management, 2023 (05): 98-107 [2023-11-01] https://doi.org/10.19634/j.cnki.11-1403/c.2023.05.011.

[5] Boubakri N, Cosset J C, Saffar W. Political connections of newly privatized firms [J]. Journal of Corporate Finance, 2008, 14 (5): 654-673.

[6] Wu Wenfeng, Wu Chongfeng, Rui Meng. Government background and tax incentives for executives of Chinese listed companies [J]. Management World, 2009 (3): 134-142.

[7] Adhikari, A., Derashid, C. and Zhang, H.,2006, Public Policy,Political Connections and Effective Tax Rates: Longitudinal Evidence from Malaysia", Journal of Accounting and Public Policy,25,pp.574-595.

[8] Fan J P H, Rui O M, Zhao M. Public governance and corporate finance: Evidence from corruption cases[J]. Journal of comparative Economics, 2008, 36(3): 343-364.

[9] Nwankpa J K, Roumani Y. IT capability and digital transformation: A firm performance perspective[J]. ICIS 2016 Proceedings. 4. 2016.

[10] Durkin M, Perez E. Examining SME engagement with local government clients: A design school model for the marketing of digital transformation services [J]. The Marketing Review, 2017, 17(3): 259-281.

[11] Li Lin, Su Fang, Zhang Wen, et al. Digital Transformation of Small and Medium sized Enterprises: A Capability Perspective. Journal of Information Systems, 2018, 28 (6): 1129-1157.

[12] Tee C M, Gul F A, Foo Y B, et al. Institutional monitoring, political connections and audit fees: Evidence from Malaysian firms [J]. International Journal of Auditing, 2017, 21(2): 164-176.

[13] Hall, Richard. The management of intellectual assets: A new cor-porate perspectivelJl. Journal of General Management 1989.15(Autumn):53-68.

[14] Backes-Geliner, U.and Tuor, S.Avoiding labor shortages by employer signaling-on the importance of good work climate and labor relations. Industrial and Labor Relations Review, 2010(63), pp. 271-286.
[15] Cleveland, J. N.and Lim,A.S.Employee age and performance in organizations,in k.S.Shultz and G.A.Adams(eds), Aging and Work in the 21st Century,Mahwah,NJ:Lawrence Erlbaum. 2007.
[16] Platt H, Platt M. Corporate board attributes and bankruptcy [J]. Journal of Business Research, 2012, 65(8): 1139-1143.
[17] Twenge J M, Campbell S M, Hoffman B J, et al. Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing[J]. Journal of management, 2010, 36(5): 1117-1142.
[18] Carter D A, D'Souza F, Simkins B J, et al. The gender and ethnic diversity of US boards and board committees and firm financial performance[J]. Corporate Governance: An International Review, 2010, 18(5): 396-414.
[19] He Ying, Yu Wenlei, Dai Yichi, et al. Executive Career Experience and Corporate Innovation [J]. Management World, 2019, 35 (11): 174-192.
[20] Zhang Jianjun, Zhang Jianlong. Heterogeneity, power gap, and harmonious relationship between chairman and general manager and organizational performance: Evidence from listed companies [J]. Management World 2016 (1).
[21] Baranchuk N, Dybvig P H. Consensus in diverse corporate boards[J]. The Review of Financial Studies, 2009, 22(2): 715-747.
[22] Ntim C G. Board diversity and organizational valuation: Unravelling the effects of ethnicity and gender[J]. Journal of Management & Governance, 2015, 19(1): 167-195.
[23] Goodstein J., K Gautam., Boeker W.The effects of board size and diversity on strategic change Strateg. Manag. J., 15 (1994), pp. 241-250.
[24] Drees J. M., Heugens P. Synthesizing and extending resource dependence theory: A meta-analysisJ. Manag.,39(6) (2013), pp. 1666-1698, 10.1177/0149206312471391.
[25] Bear S., Rahman N., Post C.The impact of board diversity and gender composition on corporate social responsibility and firm reputationJ. Bus. Ethics, 97 (2010), pp. 207-221.
[26] Wu Fei, Hu Huizhi, Lin Huiyan, et al. Digital Transformation of Enterprises and Capital Market Performance: Empirical Evidence from Stock Liquidity [J]. Management World, 2021, 37 (07): 130-144+10. DOI: 10.19744/j.cnki.11-1235/f.2021.0097.
[27] Zhu Jigao, Hu Shiyang, Lu Zhengfei. The influencing factors and economic consequences of commercial banks engaging in shadow banking business: an empirical study based on the financial outflow of the shadow banking system [J]. Financial Research, 2016 (01): 66-82.
[28] Xu Kun, Li Jiarong, Liu Jie. The Impact of Private Capital Participation on the Profitability of Urban Commercial Banks [J]. Learning and Exploration, 2023 (07): 108-119.
[29] Westphal J D, Zajac E J. Who shall govern? CEO/board power, demographic similarity, and new director selection [J]. Administrative science quarterly, 1995: 60-83.
[30] Wang Yu, Li Haiyang Endogeneity issues and correction methods in management research [J]. Quarterly Journal of Management, 2017, 3:20.
[31] Cui Xun, Wu Yue, Ding Haoming. The relationship between board diversity and company performance: an intermediary mechanism for private information in executive compensation [J]. Modern Management Science, 2019 (01): 94-96.