

CEO's Academic Experience and Enterprise Digital Transformation

Wenjing Zhong

Corresponding Author: Zhong Wenjing, Email: 1626688057@qq.com*

College of Management Science, Chengdu University of Technology, Chengdu, Sichuan Province, 610100

Abstract. In the backdrop of the digital revolution, the digital transformation of firms has become a vital force for the quality development of the Chinese economy. This article uses the A-share companies listed on the Shanghai and Shenzhen stock exchanges from 2008 to 2020 as a research sample and examines in depth the impact of the CEO's academic background on the digital transformation of businesses. The study indicated that academically trained CEOs can greatly advance the digital transformation of businesses. The importance of the academic background of the CEO in encouraging the digital transformation of enterprises is found to be more relevant in non-state-owned enterprises and high-tech enterprises. The research findings not only enrich the research on the relationship between manager characteristics and enterprise management but also provide enterprises with experience and theoretical reference for coordinating digital transformation resources from a micro perspective and serve as a useful reference for the growth of the digital economy in China.

Keywords: CEO academic background; enterprise digital transformation; digital resources; enterprise innovation

1 Introduction

Since the turn of the 21st century, the rapid development of digital technologies, such as the Internet of Things, cloud computing, big data, and artificial intelligence, has been fully integrated into the national economy, driving the rapid growth of the new economy and the emergence of new driving forces. Therefore, digital transformation has been described as the “new growth engine” (Xu Xianchun et al., 2021). The Fifth Plenary Session of the 19th Central Committee made it clear that it is important to accelerate digital development and construct a comprehensive “Digital China”. Evidently, the rapid development of industries enabled by digital transformation has become the norm in the era of the digital economy. It is worth noting, however, that according to *Accenture China Digital Transformation Index 2021*, the majority of Chinese businesses are still in the exploratory phase of digital transformation, with only 16% of businesses registering prominent transformation results.

As the primary initiators and leaders of strategic decisions, corporate executives have a substantial impact on the production and operation of the organization. Varied management styles are influenced by different corporate performances, which are influenced by the management styles of different corporate executives. The Upper Echelons Theory demonstrates that the CEO is a key decision-maker among corporate leaders and that his personal experience can impact his

decision-making style (Hambrick and Mason, 1984), thus shaping all facets of company operations. The Chinese Ministry of Education announced the 13th Five-Year Plan for Science and Technology Development of Higher Education Institutions on November 24, 2016. The strategy suggests that the system for college professors who are part-time entrepreneurs, who leave their employment to pursue entrepreneurship, or who return to their teaching posts should be overhauled. Qualified scientific researchers should be permitted to retain research projects and scientific research outcomes while preserving their basic rewards as teachers when they start businesses or engage in innovative activities. In addition, the state should encourage individuals with academic expertise to participate in enterprise operation and management, with the primary goal of promoting the transformation of scientific research results and enhancing the innovation capacity of businesses. On March 7, 2018, while participating in the deliberations of the Guangdong delegation for the two sessions, General Secretary Xi Jinping highlighted further that talent was the foundation and innovation was the most important driving force. China's growth is contingent upon innovation, while innovation is contingent upon talent. The contemporary innovation boom is driven by digital transformation, with CEOs in charge of corporate talents.

This article uses A-share listed companies on the Shanghai and Shenzhen stock exchanges from 2008 to 2020 as a research sample to investigate the impact of a CEO's educational background on enterprise digital transformation. Possible marginal contributions to this article include (1) It enhances studies on the impact of executive background on corporate operations. Existing research indicates that the personal traits of leaders have a greater impact on business operations, such as their financial experience and corporate financing, their military background, and the company's degree of financialization. However, it is uncommon to distinguish between the CEO and the executives, the academic background and the background qualities, and the digital transformation and enterprise development. (2) The research has practical value, as it can prevent certain businesses from mindlessly implementing digital transformation and provide fresh ideas for encouraging the successful digitalization of businesses. It also validates initiatives such as the 13th Five-Year Plan for Science and Technology Development in Higher Education Institutions.

2 Literature Review and Theoretical Analysis

Digital transformation is the process of initiating an organization's strategic response through digital technologies such as information, computing, and communication, altering its structure, boundaries, and even value-generation paths, and then achieving the growth of business entities (Vial, 2019). Enterprise strategic transformation is a laborious and intricate systematic endeavor, fraught with risks in resource integration, capability reconstruction, organizational change, and strategic control, among others. The absence of a critical factor or a mismatch between factors may result in transformation failure (Matt. et al., 2015; Warner and Waeger, 2019). The digital transformation of businesses is strategic. According to organizational learning theory, frequent strategic change is an active organizational learning behavior that may overcome organizational inertia and alter the knowledge, resources, and capacity base, hence encouraging the strategic transformation and upgrading of organizations. However, if the frequency is excessive, it may disturb the organization's stability by producing management and information overload, which would result in transformation failure and harm company performance (Huber, 1991). There are many more digital transformations that have failed like this

one. The configuration effects of the five conditions of environmental complexity, absorptive capacity, innovation capacity, adaptability, and frequency of strategy change will vary for the digital transformation of businesses. The four configurations of seeking stability while undergoing change, blindly seeking transformation, seeking transformation while preserving stability, and passively seeking transformation can all result in digital transformation with a high level of maturity. The five configurations covered in the two categories of poor transformation reasons and weak transformation skills will result in digital transformation that is immature (Wang Ye et al., 2022).

Many aspects of business operations can be influenced by the traits of the CEO. A CEO's high emotional intelligence can reduce overconfidence and other radical behaviors, thereby improving the effectiveness of financial decision-making in capital structure, investment decision-making, and dividend distribution (Azouzi and Jarboui, 2014); A CEO's financial experience enables him to have a better understanding of a certain field (Hitt and Tyler, 1991), which can affect corporate strategic choices and business performance (Hambrick and Mason, 1984); A CEO's financial experience is conducive to alleviating corporate financing constraints (Jiang Fuxiu et al., 2018). The upper echelons theory holds that managers will make judgments based on their cognitive models and values due to their limited vision and selective cognition. The company's strategic decisions are mostly impacted by executives' limited understanding and evaluation of environmental conditions. Experience is a crucial factor that influences the cognitive abilities and values of an executive's psychological structure. An individual's academic background has a vital part in the building of an individual's cognitive abilities and values as a significant professional experience. Today, digital transformation is a major part of business innovation, with the CEO being a prominent figure among senior executives. Different scholars have proven the association between the educational background of executives and corporate innovation. The study indicated that the academic background of the CEO can increase the innovation output of businesses (Zhang Xiaoliang et al., 2019). The academic background of leaders can greatly boost the innovation input and substantive innovation output of businesses, while having a major negative effect on strategic innovation output (Zhao Shanshan et al., 2019).

This suggests that the influence of the CEO's academic background on the digital transformation of firms may be enhanced or impeded, which may be summarized for the time being as the information effect and constraint effect. In terms of information effect, executives with academic backgrounds have a comprehensive understanding of R&D activities, as well as a wealth of relevant knowledge and experience. On the other hand, the government has repeatedly emphasized in official documents over the past few years the significance of constructing an industry-university-research system. On the basis of this approach, senior executives with academic credentials can serve as a conduit for communication between businesses, universities, and research organizations, fostering collaboration in scientific research projects, etc. It is advantageous for businesses to get more innovative information through information sharing, thus enhancing their degree of innovation (Han Mengmeng et al., 2020). In addition, the meticulous and prudent traits fostered by academic work experience cause executives with academic backgrounds to favor conservative financial policies and to have stricter requirements for the quality of accounting information and the control of risks, thereby enhancing the credibility of accounting information and decreasing the level of information asymmetry (Shen Huayu et al., 2018). It is evident that the knowledge advantage offered by these leaders can increase the enterprise's confidence and willingness to engage in innovative activity, thus enhancing their level of digital

transformation. From the perspective of the constraint effect, executives with academic experience are more morally conscious (Jiang Fuxiu et al., 2019), and their self-discipline awareness helps to weaken the earnings management tendency of executives (Zhou Kaitang et al., 2017), thereby enhancing the quality of corporate accounting information (Ma et al., 2019) and internal governance (Shen Huayu et al., 2018) and reducing corporate debt financing costs and audit fees (Shen Huayu et al., 2018). In addition, the substantial reputational cost of misbehavior by academic executives will have an immediate effect on their actions (Wen et al., 2019). From this perspective, the academic background of CEOs will make them more sensitive and cautious with regard to corporate internal control, discouraging the investment of corporate resources in digital transformation. This paper concludes with the following alternative hypotheses:

Hypothesis 1a: The CEO's academic background facilitates the digital transformation of businesses.

Hypothesis 1b: The CEO's academic background hinders the digital transformation of businesses.

3 Research Design

a) Sample selection and data sources

The research sample for this paper consists of Shanghai and Shenzhen A-share listed companies from 2008 to 2020. To ensure the robustness of the conclusions, the company samples are screened in the following manner: eliminating ST and *ST firms, financial and real estate firms, and missing values. In addition, all continuous variables are winsorized to prevent extreme data values from impacting test findings. All of the data in this report came from the CSMAR and WIND databases.

b) Variable Definition and Measurement

1. Dependent variables: The digital transformation of enterprises (*InDIGIT*). According to Wu Fei et al. (2021), this article is based on the data of listed firms in China from 2008 to 2020 and uses Python to gather "digital transformation" keywords from the company's annual report, thereby depicting the intensity of the company's digital transformation. This type of data has typical "right-biased" features, so this study will log it in order to acquire the overall indicators that reflect the digital transformation of businesses.

2. Explanatory variables: Academic background of the CEO (*CEOACA*). In recent years, an increasing number of scientific researchers with academic experience have taken crucial roles such as corporate CEOs, forming a significant segment of the capital market. Using the findings of Wen et al. (2019) and Jiang Fuxiu et al. (2019), this report defines a scholar-type CEO as one who satisfies one of the following two criteria: He has engaged in teaching or scientific research in colleges and universities; or, he has conducted scientific research in non-profit scientific research institutions, such as the Institute of Solid State Physics, Chinese Academy of Sciences, and China Construction Material Science Research General Institute, among others. The *CEOACA* value is 1 if the CEO has academic experience; otherwise, it is 0.

3. Controlled variables: In order to improve the precision of the research, a number of controlled variables, such as board size (*Scale*), ownership concentration (*Conce*), corporate income (*Income*), corporate age (*Age*), dual position of the general manager and chairman of the board (*Dual*), corporate capital intensity (*Capint*), board independence (*Indenp*), company size (*Size*), market-to-book ratio (*MTB*), and cash flow ratio (*cashindir*), have been included in this paper. See the following table for specific variables.

Table 1. Variable Definitions [self-drawn]

Types of Variables	Variable Names	Symbols	Variable Definitions
Dependent Variables	Indicators of Digital Transformation	<i>InDIGIT</i>	Frequency of words involving “ digital transformation of enterprises” in annual reports of listed companies.
Explanatory Variables	Academic background of the CEO	<i>CEOACA</i>	The CEOACA value is 1 if the CEO has academic experience; otherwise, it is 0.
Controlled Variables	Board Size	<i>Scale</i>	The number of board members.
	Ownership Concentration	<i>Conce</i>	The shareholding ratio of the company’s largest shareholder.
	Corporate Income	<i>Income</i>	Company’s operating income.
	Corporate Age	<i>Age</i>	Years listed.
	Dual Position of the General Manager and Chairman of the Board	<i>Dual</i>	If the chairman and the general manager are the same people, the value is 1; otherwise, it is 2.
	Corporate Capital Intensity	<i>Capint</i>	<i>Invint</i> (inventory intensity), the ratio of inventory to total assets.
	Board Independence	<i>Indenp</i>	The proportion of independent directors.
	Company Size	<i>Size</i>	Expressed by the natural logarithm of the company’s total assets at the end of the period.
	Market-to-Book Ratio	<i>MTB</i>	Market-to-book ratio.
	Cash Flow Ratio	<i>cashindir</i>	The cash flow ratio calculated under the indirect method.

c) Research model

To examine the logical link between the CEO’s academic background and the digital transformation of businesses, the OLS regression model was applied, and the multiple regression model was developed as follows:

$$DIGIT = \beta_0 + \beta_1 CEOACA + \sum \phi CVs + \sum Year + \sum Ind + \varepsilon \quad (1)$$

The explanatory variable is *DIGIT*, which represents the level of digital transformation of businesses based on the frequency of the phrase “digital transformation of businesses” in the annual reports of publicly traded corporations. *CEOACA*, which indicates the CEO’s academic background as judged by the CEO’s academic experience, is the primary explanatory variable. The coefficient β_1 shows the influence of the CEO’s academic background on the enterprise’s digital transformation. *CVs* reflect every controlled variable used for this study. To consider the impact of unobservable elements at the industry and time levels on the digital transformation of organizations, this article adds two fixed effects at the industry and year levels and ε is the residual.

4 Analysis of Empirical Results

a) Descriptive statistics and correlation analysis

Table 2 demonstrates that the degree of digitalization among businesses varies significantly. The minimum value of the digital transformation indicator (*lnDIGIT*) is 0, and the maximum value is 5.124, indicating that the proportion of decision-making involving a digital transformation in some enterprises exceeds 50%, with a relatively strong degree of digital transformation; the average value of CEO academic background (*CEOACA*) is 0.169, which illustrates that CEOs with academic backgrounds account for only 16.9% of all samples, indicating that the majority of companies do not hire CEOs with academic backgrounds.

Table 2. Descriptive statistics of main variables [self-drawn]

<i>variables</i>	<i>N</i>	<i>mean</i>	<i>sd</i>	<i>p50</i>	<i>min</i>	<i>max</i>
<i>Scale</i>	14615	8.566	1.710	9	5	15
<i>Conce</i>	14615	34.41	14.91	32.12	8.773	75.25
<i>lnIncome</i>	14615	21.55	1.476	21.41	18.65	25.69
<i>Age</i>	14615	2.013	0.921	2.197	0	3.296
<i>Dual</i>	14615	1.712	0.453	2	1	2
<i>Capint</i>	14615	0.138	0.122	0.111	0	0.655
<i>Indenp</i>	14615	0.376	0.0540	0.364	0.333	0.571
<i>Size</i>	14615	22.20	1.309	22.03	19.92	26.14
<i>CEOACA</i>	14615	0.169	0.367	0	0	1
<i>lnDIGIT</i>	14615	1.754	1.366	1.609	0	5.124

This paper applies the Pearson correlation coefficient test to the research variables to determine the preliminary relationship between the digital transformation of businesses and the educational background of CEOs. According to Table 3, the correlation coefficient between the digital transformation indicator (*lnDIGIT*) and the educational background of the CEO is 0.059, which is statistically significant at the 1% level. This provides initial evidence for the hypothesis test of this paper, namely that the digital transformation level of the organization is higher where the CEO has the most academic experience. Due to the fact that the coefficients between the variables do not surpass 0.5, it is evident that there is no multilinear link between the variables in the study; nonetheless, multiple regression analysis is required to draw more precise findings.

Table 3. Multiple regression results [self-drawn]

	<i>lnDIGIT</i>	<i>CEOACA</i>	<i>Scale</i>	<i>Conce</i>	<i>lnIncome</i>	<i>Age</i>	<i>Dual</i>	<i>Capint</i>	<i>Indenp</i>	<i>Size</i>
<i>lnDIGIT</i>	1									
<i>CEOACA</i>	0.059***	1								
<i>Scale</i>	-0.070***	-0.029***	1							
<i>Conce</i>	-0.130***	-0.058***	0.020**	1						
<i>lnIncome</i>	-0.005	-0.104***	0.258***	0.200***	1					
<i>Age</i>	-0.049***	-0.138***	0.147***	-0.068***	0.403***	1				
<i>Dual</i>	-0.079***	-0.189***	0.183***	0.019**	0.192***	0.250***	1			
<i>Capint</i>	-0.100***	-0.021**	-0.026***	0.051***	0.150***	0.127***	0.015*	1		
<i>Indenp</i>	0.041***	0.019**	-0.510***	0.038***	-0.011	-0.027***	-0.126***	0.002	1	
<i>Size</i>	-0.018**	-0.104***	0.283***	0.182***	0.893***	0.456***	0.202***	0.143***	0.002	1

Note: *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. The same below.

b) Analysis of multiple regression results

In this study, robust standard errors are used to reduce the negative impacts of heteroscedasticity on the regression findings, and a progressive regression technique is employed to maximize the predictive capacity. From Table 4-Multiple regression results of the CEO's academic background and enterprise digital transformation, it can be seen that column (1) reports the regression results of the golden digital transformation indicator *lnDIGIT* without adding controlled variables, where the regression coefficient of the CEO academic background (*CEOACA*) is 0.219 and it is statistically significant at the 1% level. In column (2), the set of controlled variables is added to the original basis, and the relevant regression coefficient is decreased (0.137). This could be a result of the use of controlled variables. Some factors influencing digital transformation are absorbed, but their significance is unaffected ($t = -4.319$); Column (3) regulates the time and industry-fixed effects. The enterprise digital transformation indicator (*lnDIGIT*) regression coefficient was 0.094 and passed the 1% statistical significance test. This paper's study hypothesis 1a is supported by the fact that the academic background of the CEO will enhance the proportion of capital invested in innovation and improve the degree of digital transformation among businesses. This demonstrates that CEOs with academic credentials can utilize academic resources and personal networks to increase investment in the digital transformation of businesses. Additionally, they are not easily deterred by the failure of innovation investment and have a higher desire to encourage the digital transformation of businesses. When presented with digital transformation prospects, they are more likely to make good decisions, thus driving the digital transformation of organizations.

Table 4. Multiple regression results [self-drawn]

<i>Variables</i>	<i>lnDIGIT</i> (1)	<i>lnDIGIT</i> (2)	<i>lnDIGIT</i> (3)
<i>CEOACA</i>	0.219*** (-6.988)	0.137*** (-4.319)	0.094*** (-3.53)
<i>Scale</i>		-0.059***	-0.006

		(-7.363)	(-0.927)
<i>Conce</i>		-0.013***	-0.004***
		(-16.861)	(-6.597)
<i>Income</i>		-0.000**	0
		(-2.421)	(-1.434)
<i>Age</i>		-0.079***	0.007
		(-5.752)	(-0.58)
<i>Dual</i>		-0.176***	-0.101***
		(-6.571)	(-4.609)
<i>Capint</i>		-1.095***	-0.138
		(-12.770)	(-1.416)
<i>Indenp</i>		0.017	-0.003
		(-0.071)	(-0.014)
<i>Size</i>		0.090***	0.146***
		(-8.693)	(-15.5)
<i>_cons</i>	1.717***	1.276***	-2.583***
	(-139.085)	(-5.723)	(-11.054)
<i>Industry</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
<i>Year</i>	<i>NO</i>	<i>NO</i>	<i>YES</i>
<i>N</i>	14615	14615	14615
<i>r2_a</i>	0.003	0.04	0.372

5 Further analysis

This research uses two variables of property rights and technology features for group regression in order to investigate further whether the academic background of CEOs in diverse circumstances makes a difference in fostering the digital transformation of firms. When the enterprise belongs to a state-controlled enterprise, the property variable is assigned the value 1, and otherwise, it is assigned the value 0. The technology attribute variable is assigned a value of 1 if the enterprise is a high-tech enterprise; otherwise, it is given a value of 0.

a) Property rights

In the state-owned enterprise model (1), the regression coefficient of the CEO's academic background on the enterprise's digital transformation is -0.013, which fails the statistical significance test; in the non-state-owned enterprise model (2), the promotion effect of the CEO's academic background passes the 1% statistical significance test. The majority of state-owned businesses are traditional organizations that frequently separate business and IT technologies. IT departments do not understand business, and business departments do not understand IT, preventing collaboration between the two. The essence of digital transformation is the in-depth integration of business and IT technology. The digital transformation of state-owned firms necessitates discarding the conventional management model and embracing new developments. The enterprise's established management system, organizational structure, and business processes are all

based on the traditional management paradigm. Transformation also entails change, which will force already-comfortable personnel of the firm to adapt to new work habits, job adjustments, and the technical nature of their professions. These issues will impede the digital transformation of businesses. In addition, Wu Fei et al. (2021) assert that state-owned firms can leverage their national reputation chains to embed their advantages and have inherent advantages in the sectors of resource acquisition and market share. Generally, market rivalry exerts less pressure on such businesses. In the realm of innovation and transformation, motivation is frequently lacking, and digital technology on the leading edge receives very little attention. Although academically-trained CEOs of state-owned businesses possess innovation capabilities and creative advantages, they have long resided in the state-owned firm ecosystem and lack the resolve to shift. In contrast, non-state-owned businesses are unable to advance or recede due to market competition pressure. In order to gain a sufficient market share, CEOs of such businesses have a greater subjective desire to engage in innovation and transformation activities in order to support the digital transformation of businesses, hence enhancing organizational efficiency and expanding market share. On this basis, CEOs of non-state-owned businesses have a larger incentive to encourage the deployment of digital transformation in an effort to improve performance. This is represented in the capital market as a major increase in the degree of digital transformation among businesses.

Table 5. Heterogeneity test of enterprise type [self-drawn]

<i>Variables</i>	<i>lnDIGIT</i> (1)	<i>lnDIGIT</i> (2)	<i>lnDIGIT</i> (3)	<i>lnDIGIT</i> (4)
<i>CEOACA</i>	-0.013 (-0.233)	0.120*** -3.868	0.108*** -3.191	0.093** -2.092
<i>Scale</i>	0.005 -0.507	0.006 -0.62	-0.023** (-2.370)	0.016* -1.75
<i>Conce</i>	-0.003*** (-2.654)	-0.002** (-2.350)	-0.006*** (-6.849)	-0.003*** (-2.686)
<i>Income</i>	0 (-0.738)	0.000*** -7.783	0 -0.816	-0.000** (-2.311)
<i>Age</i>	-0.009 (-0.345)	0.053*** -3.403	0.032* -1.671	-0.029* (-1.792)
<i>Dual</i>	-0.105** (-2.032)	-0.067*** (-2.637)	-0.075*** (-2.612)	-0.168*** (-4.781)
<i>Capint</i>	-0.013 (-0.091)	-0.213 (-1.587)	0.037 -0.252	-0.329** (-2.478)
<i>Indenp</i>	0.419 -1.339	0.107 -0.377	-0.057 (-0.208)	0.166 -0.539
<i>Size</i>	0.113*** -7.988	0.143*** -9.588	0.139*** -9.217	0.148*** -11.722
<i>_cons</i>	-1.971*** (-5.617)	-3.189*** (-8.377)	-2.720*** (-7.314)	-2.463*** (-7.861)
<i>N</i>	4908	9405	8324	6189
<i>r² a</i>	0.355	0.376	0.397	0.33

b) Technological attributes

In models (3) and (4), the distinctions between the technological qualities of businesses are examined. The study indicated that in high-tech companies (3), the academic background of the CEO encouraged digital transformation significantly (the coefficient was 0.108 and passed a significance test of 1%). In non-high-tech enterprises (4), *CEOACA*'s regression coefficient passed the 5% significance test, indicating that, compared to non-high-tech enterprises, the CEO's academic background has a more pronounced impact on the optimization of digital transformation, thereby demonstrating a certain differentiation effect. Wu Fei et al. (2021) assert that, on the one hand, technical innovation is the primary focus of the production and operations of high-tech firms. Innovation and the transformation of digital technology, as frontier positions in the new era, are inevitably the most important and most invested-in areas for high-tech companies. In contrast, digital transformation necessitates a robust innovation foundation. High-tech firms are capable of meeting the novel technical requirements for digital transformation and integrating digital transformation into their own organizational structure, decision-making system, and manufacturing process. The active willingness and objective basic conditions of high-tech firms participating in digital transformation decide that they are more effective at furthering the digital transformation process. In contrast, the development orientation of non-high-tech enterprises is not committed to innovation, their development and decision-making orientations are insufficiently sensitive to digital transformation, and they lack the objective technical prerequisites for a comprehensive digital transformation. In contrast, change may fall victim to the "illusion of innovation" of digital transformation, resulting in increased resource waste. Consequently, the majority of these organizations have a relatively low degree of digital transformation, and this low-level innovation and transformation behavior cannot be successfully recognized by the capital market, which naturally diminishes the CEO's confidence in further digital transformation.

6 Research conclusions

This research empirically evaluates the impact of the CEO's academic background on the digital transformation of organizations using data from 2008–2022 A-share listed companies in Shanghai and Shenzhen. The empirical test results indicate that: (1) the educational background of CEOs will really facilitate the digital transformation of actual businesses. Even with the addition of controlled factors and the modification of the sample regression, the research results remain unchanged. (2) The importance of a CEO's academic education in fostering the digital transformation of businesses is greater in non-state-owned and high-tech companies. This work contributes to the literature on the relationship between managerial traits and enterprise decision-making and offers novel explanations for the reasons for digital transformation in businesses. In light of the fact that the government attaches considerable importance to the growth of the digital economy and actively promotes the incorporation of academic talent into corporate management, the research presented in this paper has some practical relevance. If an organization follows the digital transformation wave blindly and disregards its own characteristics and factors, such as the timing, speed, and method of transformation, it risks wasting organizational resources, harming organizational performance, and destroying organizational stability. On the one hand, CEOs with academic degrees may use academic resources and personal networks to enhance investment in the digital transformation of businesses. It is difficult to be disheartened

by the failure of innovation investment because the desire to promote the digital transformation of enterprises is greater, and CEOs are more likely to make positive decisions when presented with digital transformation opportunities, thereby promoting the digital transformation of enterprises. Therefore, by allowing CEOs with academic backgrounds to participate in the digital transformation of businesses, the risks associated with resource integration, capability reconstruction, organizational change, and strategic control can be better managed. Simultaneously, the government should continue to optimize the policy and market environment and strive to break down the barriers to digital transformation for some enterprises, guide the flow of resources such as talent and technologies to enterprises, and assist enterprises in establishing a supply for digital transformation.

The limits of this paper are also based on objective considerations. There is no additional classification and evaluation of the CEO's academic background based on characteristics such as subject nature and academic level due to the lack of data sources. Therefore, the gathered knowledge is insufficient, and there is no universally applicable standard. The foregoing constraints may have an impact on the findings of this investigation.

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