

Wang, Yao; Kang, Zhijie

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Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/>

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Analysis on the Influence of Tax Reduction and Fee Reduction Policies on Digital Development Level of Enterprises Based on AHP-DEMATEL

Yao Wang, Xinyang Vocational and Technical College, China*

Zhijie Kang, Xinyang Vocational and Technical College, China

ABSTRACT

Since structural tax cuts were first incorporated into active fiscal policy in 2008, various tax breaks have been introduced. Based on the detailed enumeration of tax reduction policy measures, this study constructs an evaluation index system for the level of digital development of enterprises in terms of strategy implementation, operation status, technology level, and quality management. Then DEMATEL hierarchical analysis method and big data analysis method are used to analyse and determine the comprehensive influence degree of each index. Finally, this paper analyses the benefits and convenience brought by tax reduction and fee reduction to the digital development of enterprises and puts forward countermeasures and suggestions for the development of digital transformation of enterprises in the context of tax reduction and fee reduction. This study aims to put forward relevant countermeasures for enterprises to enhance their digital transformation and development capabilities.

KEYWORDS

AHP, Algorithm, Data Analysis, DEMATEL, Digital Development, Target Decision-Making, TR-FR

Facing a complex and volatile economic situation has gradually accelerated the implementation of Tax and expense reduction (TR-FR) policies in China in order to further stimulate market vitality and promote high-quality economic development (Li & Yang, 2021). According to statistics, during the 13th Five-Year Plan period (2016-2020), TR-FR have increased by more than 7.6 trillion yuan (Xu & Wei, 2021). Tax cuts and fee cuts increased by 4.86 trillion yuan between 2019 and 2020, accounting for 2.4% of GDP in the same period (Beghin et al., 2003). TR-FR policies played a positive role in easing downward pressure on the economy, stabilizing enterprises and ensuring employment (Zhong & Zhao, 2020). China will continue to maintain the continuity and stability of macroeconomic policies and continue to push forward the policy of tax and fee cuts in 2022 (Rao et al., 2023). Therefore, on the basis of analyzing and evaluating the effects of TR-FR in the early stage, it is undoubtedly of profound practical significance to actively explore feasible ways to promote the deeper release of policy dividends (Yang, 2023).

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*Corresponding Author

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In 2008, the US subprime crisis seriously disrupted the world economic order (Baldwin, 2008). The global economy, trade, and growth have all declined, and a sustained and healthy economy has also been impacted in China (Sager, 2011). In response to changes in the international situation and to relieve pressure from market players, structural tax reduction was included in the proactive fiscal policy for the first time, thus officially kicking off China's TR-FR policies (Guo & Shi, 2021). Since then, China has implemented a series of policies and measures to reduce taxes on major taxes, as well as taxes and fees such as "six taxes and two fees," administrative charges, and social insurance premiums (Ahrens & Ferry, 2020). Based on different policy objectives, this paper divides these policy measures into four types: stimulating TR-FR, relief TR-FR, universal TR-FR, and institutional optimization TR-FR. The details of these four policies are as follows.

- (1) Stimulating TR-FR: Aims to guide the change of industrial structure and market supply and demand through tax policy adjustment (Tong & Rahman, 2022), thus achieve the goal of encouraging innovation, supporting investment, and stabilizing employment (Mgammal, 2020). Since 2008, China has introduced a number of tax exemptions and preferential policies. These policies mainly promote the in-depth implementation of the strategy of western development from the perspectives of promoting investment and expanding consumption (Qiang, 2021).
- (2) Relief TR-FR: Mainly refers to tax relief measures provided to taxpayers in the process of production and operation due to temporary difficulties caused by changes in the external and objective environment (Zheng & Zhang, 2021). In response to the devastating impact of the Wenchuan earthquake in 2008 and the COVID-19 epidemic in 2020 on the normal operation of enterprises in some regions of China, the state granted periodic reductions in VAT and income tax to some areas severely affected by earthquakes (Gobey & Matikonis, 2021), including Sichuan Province, and areas severely affected by COVID-19, including Hubei Province. With these efforts, the state strongly promoted the rapid restoration of local economies and the steady restoration of order (Kim & Park, 2021).
- (3) Universal TR-FR: Mainly refers to the tax reduction and exemption that the state implemented across society through preferential tax policies covering a wide range of areas (Seip, 2019). Faced with the pressure of global economic slowdown and the complex situation of increasing uncertainties in the pattern of world economic development, China introduced a wide range of TR-FR measures in 2019. From adjusting social security rates to abolishing or suspending a number of administrative charges, from raising the VAT threshold and extending the scope for halving corporate income tax to rolling out preferential policies for tax and fee reductions on a large scale, the inclusive nature of these policies has become more evident, and market entities have a stronger sense of gain (Gillman, 2021).
- (4) Institutional optimization TR-FR: Mainly carried out by adjusting the structure of the tax system to coordinate tax cuts and fee cuts by improving the tax system. In essence, it is an overall and drastic TR-FR. Since 2008, China has carried out a number of tax reforms, including merging domestic and foreign enterprise income tax, expanding the scope of VAT, and transforming individual income tax. The VAT tax rebate is also adjusted from the previous temporary policy measures to long-term institutional arrangements. The adjustment of these systems has optimized the structure of China's tax system and has extended the effect of system reform into TR-FR success.

The digital transformation and development of enterprises need to be supported by a healthy and orderly market environment. In this process, on the premise of not interfering too much in the operation order of the market economy, the government has introduced various TR-FR policies, which have multiple benefits. First, the most obvious result of TR-FR is to increase the disposable income of enterprises and provide a financial guarantee for enterprises to expand reproduction. Second, TR-FR can provide a good policy environment for enterprises to realize digital transformation and

development, so as to improve their own digital development level and market competitiveness. Finally, it is beneficial to promote the stable development of the national economy. To sum up, TR-FR is an important state policy. It is worth noting that good policies are important, but it is crucial to master and flexibly use relevant TR-FR policies. In this context, it is particularly important to study the impact of TR-FR on the level of enterprise digital development.

LITERATURE REVIEW

At present, most studies mainly focus on the analysis of the concept and path of digital transformation (DT), while there are few studies about the impact of TR-FR policies on the level of enterprise digital development (Luo, 2022). Therefore, starting from the government's policy of TR-FR, this paper introduces the path of enterprise DT and evaluates its digital development level, providing reference for decision-makers of related enterprises. Kim et al. (2020) took 300 enterprises as examples to study the influencing factors of DT and tested the relationship between these factors using a structural equation model (SEM). They believed that improving the awareness of DT of enterprise management cannot promote the realization of awareness. Luo et al. (2023) emphasized that DT is the necessary way for enterprises to develop. Luo et al. comprehensively evaluated the development level of enterprise digitization from five aspects: strategy, customer, organizational culture, operation process and information technology (2020). Liu et al. (2021) studied the influence of enterprise DT on its technological innovation. The research found that its influence is mainly reflected in two aspects, quantity and quality. Zhang et al. (2021) constructed a theoretical model of DT and studied the relationship between DT and innovation by using fsQCA and SEM. Xiong et al (2022) analyzed the emission reduction effect of DT on enterprises.

EVALUATION INDEX SYSTEM OF ENTERPRISE DIGITAL DEVELOPMENT LEVEL

Path of Enterprise DT

With the continuous development of digital technology, the existing business model is threatened, and the increasing uncertainties in the operating environment urge enterprises to improve their viability through DT. DT is the use of digital technology to help enterprises optimize their management mode, business process reform, and business model reconstruction, so as to enhance their core competitiveness. The paths of enterprise digital transformation are shown in Figure 1.

Principles of Index Selection

A scientific and reasonable evaluation index is the core of an evaluation system. There are many factors influencing the development level of enterprise digitalization, which need to be designed from different levels and angles. The principles of index selection are shown in Figure 2.

Figure 1. Path of enterprise digital transformation

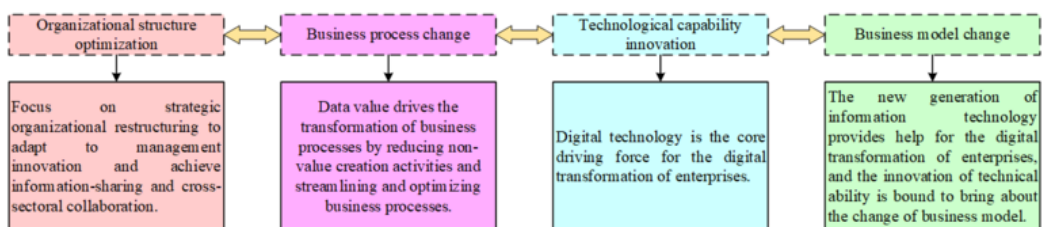
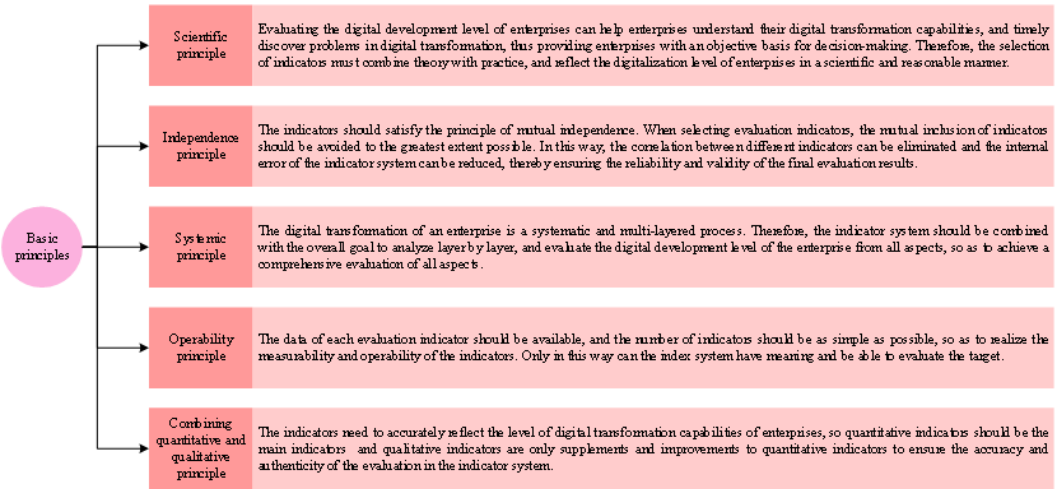


Figure 2. Principle of index selection



Construct Index System of Enterprise Digital Development Level

We study the evaluation of enterprise digital development level from four aspects: strategy, operation, technology, and management. Among them, the strategic level mainly evaluates the strategic formulation, high-level participation, and attention level of digital transformation. The operation level mainly focuses on the transformation degree of R&D, production, channel, marketing, service, and other business operations. The technical level evaluates data, IT architecture, security, and privacy. The management level mainly evaluates from the perspective of organization, process, talent, and culture. These four indicators jointly influence and act on the DT and development of enterprises. The index system can be obtained as shown in Figure 3. Specific indicators are explained as follows:

Digital strategy is the baton in the DT of manufacturing enterprises, leading the direction of enterprise digitalization. The establishment of digital management departments and positions measures the enterprise management's satisfaction with the rationality and effect of the establishment of digital-related management departments and positions in the process of enterprise DT. The investment intensity of digitalized construction funds measures the satisfaction degree of the enterprise management for the investment intensity of digitalized construction funds. The degree of digitalization of business model measures the degree of digitalization participation of the enterprise innovation business model. Management digitalization quality measures management's satisfaction with their digitalization related abilities and literacy.

Digital management is the most important task for enterprises to carry out DT. The operation process is the actual combat process of DT, and also the key to an enterprise's digital reform. The degree of digitalization of business coordination of industrial chain measures the satisfaction of enterprise management regarding whether the digitalization degree of different links of industrial chain can help the industrial chain realize high-speed operation. The degree of networking of innovation platform measures the degree of satisfaction with networking of platforms related to enterprise operation and innovation in the process of enterprise digitization. Digital productivity measures management's satisfaction with the number of digital products produced. The utilization rate of digital channel measures the possibility that enterprise management can use multiple digital channels for operation and management.

Digital technology level is the cornerstone of enterprise digital transformation. Without a necessary level of digital technology, there is no other set of digital reforms. The level of IT infrastructure measures the satisfaction of enterprise management with the enterprise network

platform, computing platform, data storage, and data management infrastructure. Internet platform building ability refers to enterprise management's satisfaction with the digitalization degree and effect of the constructed internet platform. Digital equipment rate measures the degree of satisfaction of enterprise management with whether the digitization related equipment is complete and efficient from three levels: equipment layer, network layer, and digital equipment. The protection of security and privacy measures the level of enterprise digital technology to protect the privacy information of customers and enterprises.

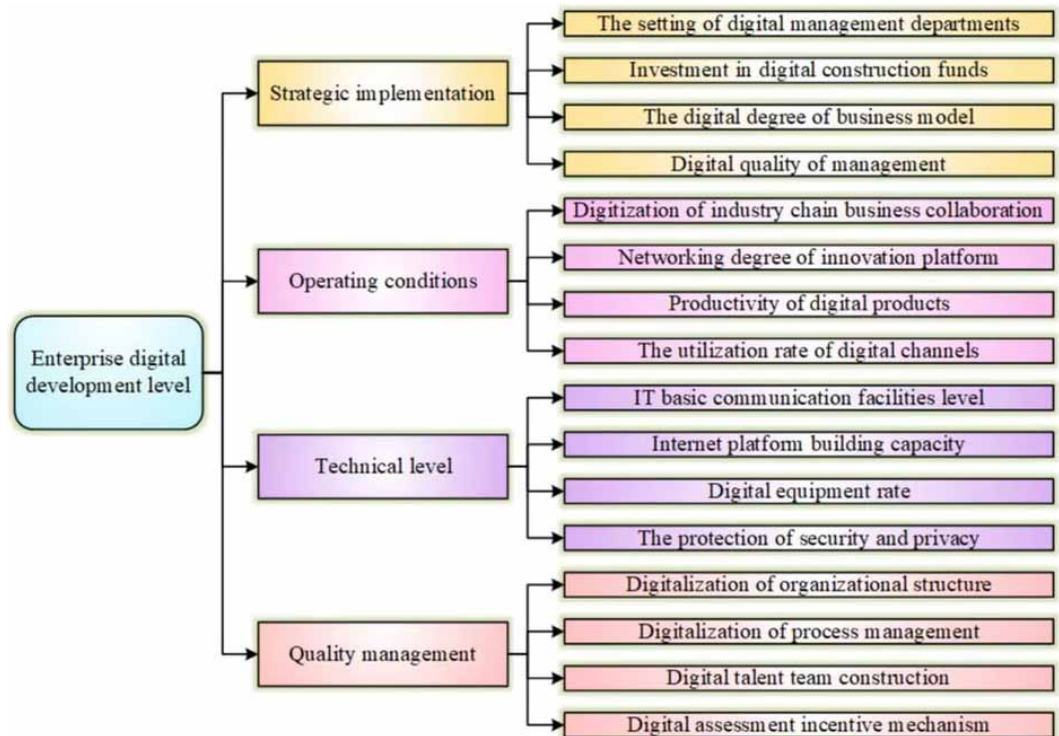
Digital management is an important means for enterprises to carry out digital transformation. The degree of digitalization of organizational structure refers to the enterprise management's participation in the implementation of organizational structure. The degree of digitalization of process management refers to the degree of digital technology participation of enterprise management in process management. The construction of digital talent team measures management's degree of satisfaction with the construction of the digital talent team. Digital assessment and incentive mechanism measures employees' satisfaction with the digital assessment and incentive measures formulated by management.

EVALUATION OF ENTERPRISE DIGITAL DEVELOPMENT LEVEL

Method Introduction

The Analytic Hierarchy Process - Decision Making Trial and Evaluation Laboratory (AHP-DEMATEL) method can be used to evaluate the level of digital development in enterprises, and problems can be considered from two different perspectives. The AHP method aims to establish a hierarchical model for sorting and evaluating multiple criteria to determine their relative importance. The DEMATEL method is a quantitative analysis method used to evaluate the causal relationship and degree of

Figure 3. Evaluation index system of enterprise digital development level



influence between standards. The combination of two methods can provide a more comprehensive assessment of the level of digital development of enterprises. The article draws conclusions about the level of digital development of enterprises by integrating the results of the AHP-DEMATEL method, indicating that the author has conducted in-depth research and evaluation of the research object and has drawn valuable conclusions. This conclusion can provide valuable reference and guidance for enterprise decision-makers, as well as new insights and research directions for the digital development of enterprises in the academic community. In summary, the conclusion drawn from the integration of AHP-DEMATEL method in the article has indeed increased its legitimacy and credibility, which is one of the important achievements of the study.

AHP

AHP is a common comprehensive evaluation method. This method first analyzes the nature of the problem, the influencing factors and their internal relations, and then makes the decision-making process mathematical by using less quantitative information, so as to simplify the complex decision-making problem. It is especially suitable for problems in which a decision is difficult to measure directly and accurately, and it has the characteristics of systematization and hierarchy. This method not only uses the method of qualitative analysis, but also applies mathematical thinking to qualitative analysis and describes it quantitatively. The qualitative and quantitative analysis are used comprehensively to promote each other, and the comprehensive evaluation with both qualitative indicators and quantitative description is better (Al-Salahi et al., 2020).

Decision Experiment and Evaluation Laboratory

Decision Experiment and Evaluation Laboratory (DEMATEL) belongs to a methodology of system science that is a system analysis method using graph theory and matrix tools. This method first establishes the direct influence matrix of each element by analyzing the logical relationship in the system, then calculates the influence degree of each element on other elements, and finally calculates the cause degree and centrality degree of each element. Finally, this method is used to obtain the weights of each element (Shang et al., 2020).

Combination Evaluation Based on AHP-DEMATEL

AHP Method to Calculate the Initial Weight

(1) Establish the hierarchical structure model

We make it clear that the problem studied in this paper is the development level of enterprise digitization, and then establish a hierarchical structure model according to the index system designed above, as shown in Figure 4.

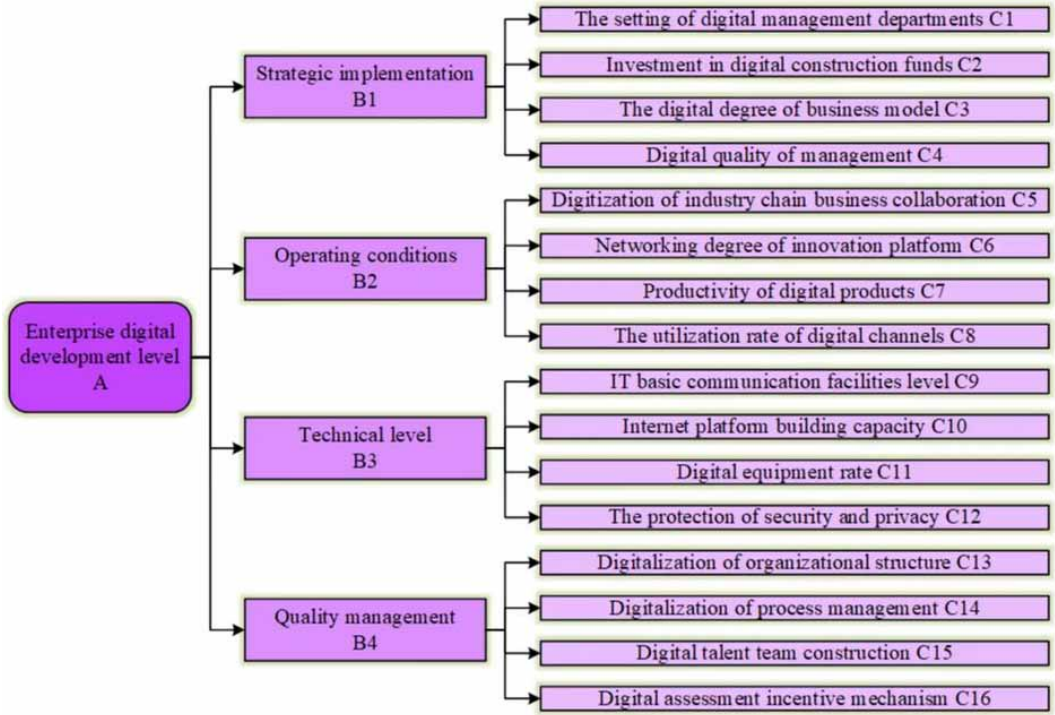
(2) Construct the judgment matrix

This paper adopts the expert scoring method (ESM) to construct the judgment matrix, and relevant experts are invited to score each influencing factor according to the 1-5 judgment matrix scale.

(3) Calculate the eigenvalue of the weight

In this paper, the summation method is used to calculate the maximum eigenvalue and the corresponding eigenvector of the judgment matrix. To obtain eigenvalues and eigenvectors through Eigen decomposition, we first represent the judgment matrix as A . Then, using feature decomposition, the judgment matrix A is decomposed into the eigenvector matrix V and the diagonal matrix D of

Figure 4. Hierarchy structure model



the eigenvalues, $A=VDV^{-1}$, where D contains the eigenvalues. The elements on the diagonal of the eigenvalue diagonal matrix D are the eigenvalues of the judgment matrix A . Each column of the eigenvector matrix V corresponds to an eigenvalue, which can be normalized to obtain the unit eigenvector. By using this method of feature decomposition, the eigenvalues and corresponding eigenvectors of the judgment matrix can be obtained.

(4) Consistency test

Consistency test is to calculate consistency index CI , random consistency index RI , and consistency ratio index CR , where CI can be calculated from the formula, and n is the order of the judgment matrix. RI can be obtained by looking at Figure 5.

First, we calculate the consistency indicator CI . Based on the order n of the judgment matrix, we can use the following formula (1) to calculate CI , where λ_{\max} is the maximum eigenvalue of the judgment matrix:

$$CI = \frac{(\lambda_{\max} - n)}{n - 1} \quad (1)$$

Next, by consulting the random consistency index RI table, we find the RI value corresponding to the order n of the judgment matrix.

Next, we use formula (2) to calculate the CI and corresponding RI , and calculate the consistency ratio indicator CR :

$$CR = \frac{CI}{RI} \quad (2)$$

Finally, the consistency level of the judgment matrix is determined by comparing CR with a preset consistency threshold (0.1). If CR is less than the preset threshold ($CR < 0.1$), it indicates that the judgment matrix has good consistency and is acceptable.

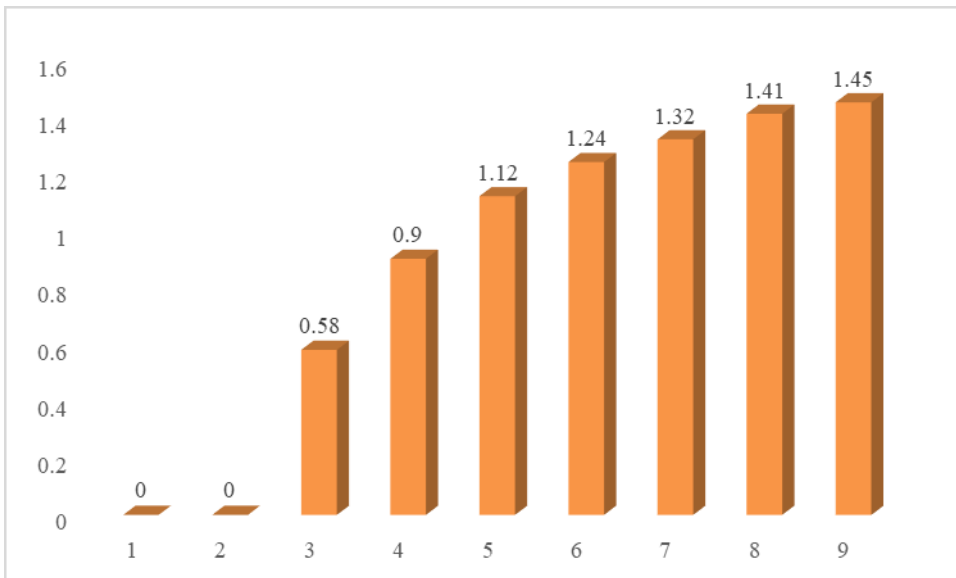
Experts judge the relative importance of each index according to the importance judgment scale. We compared the factors and obtained the judgment matrix as shown below:

$$A = \begin{bmatrix} 1 & 1/3 & 1/2 & 2 \\ 3 & 1 & 1 & 3 \\ 2 & 1 & 1 & 2 \\ 1/2 & 1/3 & 1/2 & 1 \end{bmatrix} \lambda_{\max} = 4.129, CI = 0.043, CR = 0.048$$

$$B_1 = \begin{bmatrix} 1 & 1/2 & 3 & 2 \\ 2 & 1 & 4 & 3 \\ 1/3 & 1/4 & 1 & 1/2 \\ 1/2 & 1/3 & 2 & 1 \end{bmatrix} \lambda_{\max} = 4.051, CI = 0.017, CR = 0.019$$

$$B_2 = \begin{bmatrix} 1 & 2 & 2 & 3 \\ 1/2 & 1 & 1/2 & 2 \\ 1/2 & 2 & 1 & 3 \\ 1/3 & 1/2 & 1/3 & 1 \end{bmatrix} \lambda_{\max} = 4.119, CI = 0.040, CR = 0.044$$

Figure 5. RI value



$$B_3 = \begin{bmatrix} 1 & 5 & 3 & 4 \\ 1/5 & 1 & 1/3 & 1/2 \\ 1/3 & 3 & 1 & 2 \\ 1/4 & 2 & 1/2 & 1 \end{bmatrix} \lambda_{\max} = 4.102, CI = 0.034, CR = 0.038$$

$$B_4 = \begin{bmatrix} 1 & 1/2 & 1/4 & 1/2 \\ 2 & 1 & 1/3 & 1/2 \\ 4 & 3 & 1 & 2 \\ 2 & 2 & 1/2 & 1 \end{bmatrix} \lambda_{\max} = 4.070, CI = 0.023, CR = 0.026$$

After obtaining the weights of each criterion layer to the previous criterion layer, we multiply the corresponding weight of each index of the target layer to obtain the basic weight W_i . The weights of enterprise digitalization development level are shown in Table 1.

And then we rank W_i and obtain the total ranking weight of evaluation indicators, as shown in Figure 6.

DEMATEL Method to Calculate the Influence Weight

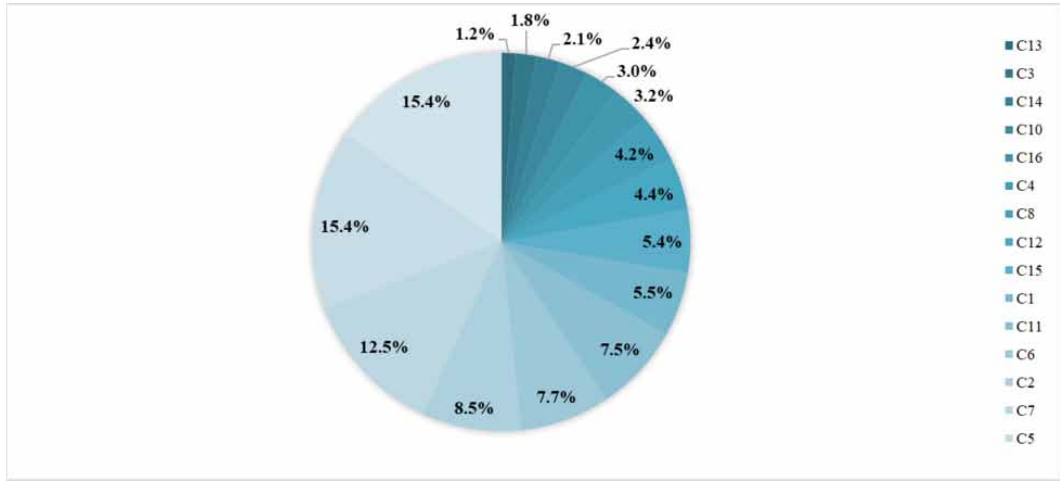
(1) Determine the degree of direct influence

First, ESM is used to determine the direct influence matrix, and the relationship between the factors is represented by 0-4 scale. The direct influence matrix is shown in Table 2.

Table 1. Weights of enterprise digitalization development level

Criterion Layer	Weight	Schematic Layer	Weight	W_i
B1	0.190	C1	0.290	0.055
		C2	0.446	0.085
		C3	0.093	0.018
		C4	0.171	0.032
B2	0.397	C5	0.387	0.154
		C6	0.194	0.077
		C7	0.315	0.125
		C8	0.105	0.042
B3	0.298	C9	0.518	0.154
		C10	0.081	0.024
		C11	0.252	0.075
		C12	0.149	0.044
B4	0.116	C13	0.104	0.012
		C14	0.178	0.021
		C15	0.463	0.054
		C16	0.255	0.030

Figure 6. Ranking of evaluation index weights of enterprise digitalization development level



(2) Normalization treatment direct influence matrix

According to Formulas (3)-(5), the direct influence matrix is normalized:

$$B = (b_{ij})_{n \times n} \quad (3)$$

$$b_{ij} = \frac{c_{ij}}{c_i} \quad (4)$$

$$c_i = \max \left\{ \sum_{j=1}^n c_{ij} \right\}, i = 1, 2, \dots \quad (5)$$

(3) Construct the comprehensive influence matrix

First, we need to figure out the comprehensive influence matrix T. I is the identity matrix. Then, the matrix T is used to obtain the centrality.

$$T = B(I - B)^{-1} \quad (6)$$

$$h_i = f_i + g_i, i = 1, 2, \dots, n \quad (7)$$

$$f_i = \sum_{j=1}^n t_{ij}, i = 1, 2, \dots, n \quad (8)$$

$$g_i = \sum_{i=1}^n t_{ij}, j = 1, 2, \dots, n \quad (9)$$

Comprehensive Influence Degree Calculation

Both AHP and DEMATEL methods use ESM to determine the relationship between various factors, which is subjective and one-sided. In order to reduce this disadvantage, we can construct the

Table 2. Direct impact matrix

B	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
C1	0	0.0345	0.0345	0.0690	0.1034	0.0345	0	0.1379	0.1034	0.0345	0.0345	0.0690	0.0345	0.1034	0.0345	0
C2	0.0690	0	0.0690	0.1034	0.1034	0.0690	0	0.0690	0.0690	0.0690	0.0690	0.1034	0.0690	0.0345	0.0345	0.0690
C3	0.1034	0.0345	0	0.0345	0.0690	0.0345	0	0.1034	0.1034	0.0345	0.0345	0.0690	0.0345	0.0690	0.1034	0.0345
C4	0.0345	0.0345	0.0345	0	0.0345	0	0	0.0345	0.0345	0.0345	0.0345	0.1034	0.0345	0.0690	0.0690	0.0345
C5	0.0345	0.0690	0.0345	0.1034	0	0.0345	0.0345	0.0690	0.0690	0	0.0345	0.0690	0.0690	0.0345	0.0690	0.0690
C6	0.0690	0.0345	0.0345	0	0.0345	0	0.0345	0.0345	0.0345	0.0345	0.0345	0.0345	0.0690	0.0345	0.0345	0.1034
C7	0.0345	0	0.1034	0.0690	0.0690	0.0345	0	0.1034	0.1034	0.0345	0.1034	0.0690	0.0345	0.1034	0.0690	0.0345
C8	0.0345	0.0690	0.0690	0.0345	0.0690	0.0345	0.0690	0	0.1034	0.0345	0.0345	0.0345	0.0690	0.0345	0	0.0690
C9	0.0345	0.0345	0	0.0690	0.1034	0.0690	0	0	0	0.0690	0.0690	0.0345	0.0345	0.0690	0.0345	0
C10	0	0.1034	0.1034	0.0690	0.0690	0.0345	0	0.0345	0.0345	0	0.0345	0.1034	0.0690	0.0345	0.0345	0
C11	0.0345	0.0690	0.0690	0.1034	0.0345	0.1034	0.0690	0.0690	0.0345	0	0	0.0690	0.1034	0.1034	0.0690	0.0690
C12	0	0	0.0345	0.0345	0.0690	0	0	0.1034	0.1034	0.0345	0.1034	0	0.0345	0.0690	0.0690	0.0345
C13	0	0.0690	0.0345	0	0.0345	0.0690	0.0345	0.0690	0.0690	0.1034	0.0690	0	0	0.0345	0.0345	0.0345
C14	0.0690	0.0345	0.0690	0	0.0345	0.0345	0.0345	0.0345	0.0345	0.0690	0.0345	0.1034	0.0345	0	0	0.1034
C15	0.0345	0	0.1034	0.0690	0.0345	0.0690	0	0.0345	0.1034	0.0345	0.1034	0.0690	0.0345	0.0690	0	0.0690
C16	0.0690	0.0345	0	0.1034	0.0690	0	0	0	0.0690	0.0345	0.0690	0.0345	0.1034	0.0690	0.0345	0

comprehensive influence degree. This index combines the advantages of the above two methods and accurately describes the importance of each index. Specific values are listed in Table 3.

$$x_i = \frac{h_i w_i}{\sum_{j=1}^n h_j w_j}, i = 1, 2, \dots, n \quad (10)$$

Result Analysis

Based on the comprehensive influence results of each evaluation index in Table 4, we draw the following three conclusions.

First, the comprehensive influence degree of C5, C7, and C9 is greater than 0.1; that is to say, the digitalization degree of industry chain business collaboration, the productivity of digital products, and the level of IT infrastructure have the greatest impact on the digitalization development level of enterprises.

Second, among all the factors, the degree of digitalization of organizational structure and business model has little influence on the development of enterprise digital transformation. Although these two indicators rank low, they are essential for DT of enterprises.

Third, the strategic level of digital construction capital investment intensity index and the technical level of digital equipment rate index have a relatively large impact on the DT and development of enterprises. From the mechanism analysis of the driving force of enterprise digital transformation, it can be seen that the fundamental driving force and subjective motivation of enterprise digital transformation is to obtain excess profits by improving digital profitability. Therefore, the government's

Table 3. Comprehensive influence degree

	f_i	g_i	h_i	w_i	$h_i * w_i$	x_i
C1	3.3158	2.5525	5.8684	0.0551	0.3233	0.0504
C2	3.9994	2.6600	6.6594	0.0848	0.5644	0.0880
C3	3.4974	3.0927	6.5900	0.0177	0.1164	0.0181
C4	2.4210	3.4988	5.9198	0.0325	0.1923	0.0300
C5	3.2175	3.7896	7.0070	0.1537	1.0768	0.1679
C6	2.5837	2.6010	5.8185	0.0768	0.4471	0.0697
C7	3.9413	1.2284	5.1697	0.1249	0.6455	0.1007
C8	3.1414	3.5474	6.6887	0.0416	0.2784	0.0434
C9	2.5421	4.2829	6.8250	0.1542	1.0527	0.1642
C10	3.0110	2.6178	5.6289	0.0241	0.1358	0.0212
C11	4.0354	3.4865	7.5219	0.0751	0.5652	0.0882
C12	2.8429	3.8968	6.7396	0.0445	0.2999	0.0468
C13	2.7676	3.4177	6.1853	0.0121	0.0748	0.0117
C14	2.8535	3.7485	6.6020	0.0206	0.1360	0.0212
C15	3.3326	2.8358	6.1684	0.0537	0.3315	0.0517
C16	2.7821	3.0283	5.8104	0.0296	0.1718	0.0268

policy of TR-FR is conducive to reducing the tax cost of enterprises, thus promoting enterprises to increase the investment of digital construction funds and increase digital equipment.

To sum up, there is no doubt that TR-FR policies bring benefits to the digital development of enterprises. In terms of how to use policies in the new era to promote high-quality digital development, the author believes that the following measures should be taken.

First, the policy of TR-FR is a powerful policy support provided by the state for the development of enterprises. However, the focus of TR-FR policies is different for different industries. Therefore, enterprises should adjust their investment strategies appropriately according to their own conditions to develop strategies suitable for digital transformation and development. In addition, there are not only technical investment strategies, but also strategic investment strategies. While considering these two aspects, the enterprise can also make some adjustments to its future digital transformation plan. For example, it can cooperate with some local colleges and universities to create departments with digital characteristics. In this way, enterprises can not only increase talents with more digital literacy, but also promote the teaching quality of universities, and increase the employment opportunities of college graduates. At the same time, enterprises should also consider their financing strategies when adjusting investment strategies by taking advantage of TR-FR preferential policies. The enterprises also need a large amount of capital, which cannot be supported by a single source, so different capital channels are needed to support the enterprises' investment strategies. Therefore, enterprises should constantly expand financing channels, realize diversified financing methods, and make digital transformation of enterprises develop steadily.

Second, enterprises should increase the research and investment of digital technology. As an important component of the overall cost system of enterprises, the effective implementation of TR-FR policies can help enterprises reduce the cost of taxes and fees. Therefore, enterprises can invest the tax cost reduced after the implementation of TR-FR policies into digitalization related technologies. Enterprises should not only pay attention to upgrading and updating digital production equipment, but also pay attention to the proportion of investment in the operation and security of digital software and hardware. At the same time, enterprises should make full use of digital technology to upgrade products and services. Only by constantly improving the added value of products and reducing the homogenization effect can enterprises achieve high-quality digital transformation and development.

Third, enterprises should strengthen the cultivation and introduction of digital talents. At present, enterprises generally lack information technology talents and entrepreneurs who can lead enterprise digitization, which greatly hinders the development process and effect of enterprise digitization transformation. Under the favorable policy environment created by TR-FR policies, enterprises should enhance the ability of digital talents in the following ways. First, enterprises should increase subsidies for talent introduction to attract highly educated and high-quality talents who understand digital technology. For example, enterprises can attract digital talents by improving salary competitiveness and providing housing subsidies. Second, enterprises can set up branches in developed cities to attract high-tech talents for their digital development. In addition, they can also pay attention to the training of digital technology for existing employees and improve the application ability of existing employees to digital technology and equipment.

CONCLUSION

Since the implementation of TR-FR policies, the government has continuously increased policy support for digital transformation development, which helps to improve and ease the pressure for enterprises to carry out DT. In this paper, the connotation path of enterprise DT are sorted out, and the index system of enterprise digital development level is established based on the current development status and difficulties of enterprise digital transformation. Then we use AHP and DEMATEL to determine the weights of indicators and put forward suggestions to improve the DT ability according to the evaluation results. The main research work is as follows:

- (1) This paper sorts out TR-FR policies and the path of enterprise digital transformation and selects indicators to evaluate enterprise digital development level from four aspects – strategy implementation, business status, technology level, and quality management – so as to construct the evaluation index system of enterprise digital development level.
- (2) According to the index system, the paper adopts expert scoring method and two weight calculation methods of AHP and DEMATEL to determine the comprehensive influence degree of the evaluation index of enterprise digital development level.
- (3) According to the results of calculation example analysis, relevant measures are put forward for enterprises to improve their digital transformation and development ability.

Based on the above research, we conclude that the implementation of TR-FR policy provides policy support for enterprise digital transformation, which helps to improve and alleviate the pressure for enterprises to carry out digital transformation. The evaluation index system for enterprise digital development level established in this article provides a comprehensive method for evaluating the digital transformation ability of enterprises, and based on the evaluation results, corresponding measures are proposed to help enterprises improve their digital transformation development ability.

REFERENCES

- Ahrens, T., & Ferry, L. (2020). Financial resilience of English local government in the aftermath of COVID-19. *Journal of Public Budgeting, Accounting & Financial Management*, 32(5), 813–823. doi:10.1108/JPBAFM-07-2020-0098
- Al-Salahi, K. F., Naji, K. K., & Gunduz, M. (2020). Evaluation of the critical success factors (CSFs) in selecting building contractors using Pareto analysis and the analytical hierarchy process. *Journal of Engineering Research*, 8(4), 1–15. doi:10.36909/jer.v8i4.9123
- Baldwin, R. E. (2008). Managing the noodle bowl: The fragility of East Asian regionalism. *The Singapore Economic Review*, 53(03), 449–478. doi:10.1142/S0217590808003063
- Beghin, J. C., Bureau, J. C., & Park, S. J. (2003). Food security and agricultural protection in South Korea. *American Journal of Agricultural Economics*, 85(3), 618–632. doi:10.1111/1467-8276.00460
- Gillman, M. (2021). Income tax evasion: Tax elasticity, welfare, and revenue. *International Tax and Public Finance*, 28(3), 533–566. doi:10.1007/s10797-020-09632-3
- Gobey, M., & Matikonis, K. (2021). Small business property tax reductions and job growth. *Small Business Economics*, 56(1), 277–292. doi:10.1007/s11187-019-00219-9
- Guo, Y. M., & Shi, Y. R. (2021). Impact of the VAT reduction policy on local fiscal pressure in China in light of the COVID-19 pandemic: A measurement based on a computable general equilibrium model. *Economic Analysis and Policy*, 69, 253–264. doi:10.1016/j.eap.2020.12.010 PMID:35702722
- Kim, K. W., Park, J. J., & Kim, J. Y. (2020). A study on the promotion of digital transformation for micro enterprises: Focusing on the factors influencing digital transformation. *Korea Business Review*, 24(0), 131–150. doi:10.17287/kbr.2020.24.0.131
- Kim, S., & Park, J. H. (2021). Dynamic factor adjustment and corporate tax reduction in the Japanese manufacturing industry. *Journal of the Asia Pacific Economy*, 26(4), 653–667. doi:10.1080/13547860.2020.1811190
- Li, T., & Yang, L. (2021). The effects of tax reduction and fee reduction policies on the digital economy. *Sustainability (Basel)*, 13(14), 7611. doi:10.3390/su13147611
- Liu, H., Wang, P., & Li, Z. (2021). Is there any difference in the impact of digital transformation on the quantity and efficiency of enterprise technological innovation? Taking China's agricultural listed companies as an example. *Sustainability (Basel)*, 13(23), 12972. doi:10.3390/su132312972
- Luo, H., Li, W., Cai, Z., & Luo, H. (2023). The environmental effects of digital economy: Evidence from province-level empirical data in China. *Environmental Science and Pollution Research International*, 30(22), 63272–63288. doi:10.1007/s11356-023-26529-w PMID:36961639
- Luo, S. (2022). Digital finance development and the digital transformation of enterprises: Based on the perspective of financing constraint and innovation drive. *Journal of Mathematics*, 2022, 1607020. doi:10.1155/2022/1607020
- Mgammal, M. H. (2020). Corporate tax planning and corporate tax disclosure. *Meditari Accountancy Research*, 28(2), 327–364. doi:10.1108/MEDAR-11-2018-0390
- Qiang, X. (2021). Technical methods for accelerating digital transformation of Chinese enterprises. *MATEC Web of Conferences*, 336, 09024.
- Rao, P., Kumar, S., Chavan, M., & Lim, W. M. (2023). A systematic literature review on SME financing: Trends and future directions. *Journal of Small Business Management*, 61(3), 1247–1277. doi:10.1080/00472778.2021.1955123
- Sager, T. (2011). Neo-liberal urban planning policies: A literature survey 1990–2010. *Progress in Planning*, 76(4), 147–199. doi:10.1016/j.progress.2011.09.001
- Seip, K. L. (2019). Does tax reduction have an effect on gross domestic product? An empirical investigation. *Journal of Policy Modeling*, 41(6), 1128–1143. doi:10.1016/j.jpolmod.2019.01.005

- Shang, X., Song, M., Huang, K., & Jiang, W. (2020). An improved evidential DEMATEL identify critical success factors under uncertain environment. *Journal of Ambient Intelligence and Humanized Computing*, 11(9), 3659–3669. doi:10.1007/s12652-019-01546-1
- Tong, T., & Rahman, A. A. (2022). Effect of innovation orientation of high-tech SMEs “small and mid-sized enterprises in China” on innovation performance. *Sustainability (Basel)*, 14(14), 8469. doi:10.3390/su14148469
- Xiong, L., Ning, J., & Dong, Y. (2022). Pollution reduction effect of the digital transformation of heavy metal enterprises under the agglomeration effect. *Journal of Cleaner Production*, 330, 129864. doi:10.1016/j.jclepro.2021.129864
- Xu, J., & Wei, W. (2021). The effects of tax and fee reduction policy on mitigating shock of the COVID-19 epidemic in China. *Applied Economics*, 53(46), 5303–5318. doi:10.1080/00036846.2021.1904119
- Yang, C. H. (2023). R&D responses to labor cost shock in China: Does firm size matter? *Small Business Economics*, 61(4), 1–21. doi:10.1007/s11187-023-00741-x
- Zhang, J., Long, J., & von Schaewen, A. M. E. (2021). How does digital transformation improve organizational resilience? Findings from PLS-SEM and fsQCA. *Sustainability (Basel)*, 13(20), 11487. doi:10.3390/su132011487
- Zheng, W., & Zhang, J. (2021). Does tax reduction spur innovation? Firm-level evidence from China. *Finance Research Letters*, 39, 101575. doi:10.1016/j.frl.2020.101575
- Zhong, M., & Zhao, Z. (2020). *Research and suggestions on population aging under the background of Social Security fee reduction*. The 5th International Symposium on Social Science (ISSS 2019). doi:10.2991/assehr.k.200312.041

Yao Wang was born in Henan, China, in 1987. From 2007 to 2011, she studied in Pingdingshan University and received her bachelor's degree in 2011. From 2011 to 2012, she worked in Shen Ma Industry Co.Ltd., Henan. From 2012 to 2014, she studied in Shanghai University and received her Master's degree in 2014. Currently, she works in Xinyang Vocational and Technical College. She has published six papers. Her research interests include Big Data and Accounting and Financial Management.

Zhijie Kang who was born in Xinyang, Henan China. He has many years of oversea life experience in Melbourne, Australia. During these years, He graduated from Deakin University with a bachelor's degree in Accounting and Finance major which from year 2008 to 2012. Also he graduated with a master degree at the same university which from year 2012 to 2014. For his career, he worked as a financial director in Xinyang construction project permitting centre from year 2015 to 2021. He currently works as a accounting tutor in Xinyang Vocational and Technical College which make more researching on the educational of accounting.