

Research and prospect of enterprise digital transformation and green innovation

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Abstract: Green development is the direction of enterprise transformation driven by the sustainable development strategy and the dual carbon policy. Digital transformation is the core strategy of enterprises in the digital era. In the context of the rapid development of the digital economy, the empowerment of green development by digital transformation of enterprises is an effective way for enterprises to transform and upgrade. Summarizing the current status of enterprise digital transformation and green innovation, and analyzing the current mechanism and path of enterprise digital transformation to promote green innovation, we can clarify the relationship between enterprise digital transformation and green innovation at this stage, and look forward to the development prospects of enterprise digital transformation and green innovation based on the current findings.

1. Introduction

In order to comply with the strategy of sustainable development, green innovation has also become a research hotspot today. As an important support for sustainable development, green innovation has gradually become an important topic for scholars. The Action Plan for Carbon Peaking Before 2030 issued by the State Council proposes that the core task of the "Carbon Peaking" action is to support and accelerate the innovation and transformation of green and low-carbon technologies of enterprises. In order to meet the call of the times, it is of practical significance to study the influencing factors of green technology innovation, which can provide experience for the realization of green sustainability.

In today's wave of digital development sweeping the world, it is an important measure to improve competitiveness by adapting to the wave of digitalization and seizing the opportunities of the times. Since 2020, policies on the digital transformation of enterprises have been released, such as the Special Action Plan for Digital Empowerment of Small and Medium-sized Enterprises and the Notice on Accelerating the Digital Transformation of State-Owned Enterprises, indicating that digitalization has become an important direction for adapting to changes in the future^[1]. It has become an important direction for future enterprise reform and transformation. At the same time, the national 14th Five-Year Plan and the Long-Range Objectives Through 2035 also clearly state that digital economy and other elements are key pillars to achieve the goal of carbon neutrality, and the application of digitalization also has important positive significance for the impact of green innovation. Therefore, on this basis, it is not only of practical significance to study the mechanism of digital transformation

for green innovation, but also has a guiding role for enterprises that develop green innovation.

2. Literature review

2.1. Digital transformation

Digitalization is in the process of development, and technologies such as big data and artificial intelligence will soon be applied to all aspects of enterprise activities, and enterprises will enter the stage of networked and intelligent development^[2]. Many scholars have put forward their own opinions on the concept of digital transformation. Gregory Vial provides a high-level definition of digital transformation, which refers to the process of triggering a major change in the attributes of an entity through a combination of information technology, computing technology, communication technology, and connectivity technology, with a view to improving the entity^[3]. From the perspective of information technology, scholars have pointed out that digitalization can improve efficiency and innovate the value of each link in each key link^[4].

The technological, organizational, and social perspectives are also different perspectives of research, and digital transformation is summarized as the process of organizational change that uses emerging digital technologies to improve and optimize business activities and business operations to create value and improve performance^[5]. On the basis of existing achievements, enterprises can reconstruct products and services, business processes, organizational structures, business models, and cooperation models through the combination of information, computing, communication, and connection technologies in the process of digital transformation, and use restructured digital technologies to improve value creation models, so as to achieve product and service innovation, business model innovation, operational efficiency, and organizational performance improvement^[6].

It can be seen that most of the current definitions of digitalization are from a technical perspective, taking information technology as the foundation, and gradually integrating into multiple links of the enterprise, gradually realizing the true integration of digital transformation and enterprise technology, and then promoting the efficiency and value improvement of enterprises. However, there is no consensus on the unification of digital transformation, so the research on digital transformation is still an important issue.

2.2. Green innovation

With the deterioration of environmental problems in recent years, ecological environment construction and green development have become important research directions, and more people advocate the development of green innovation. Green innovation is a new product or technology that can bring value to businesses and consumers and reduce the adverse impact on the natural environment^[7]. In the context of the new era, the combination of green innovation and digitalization has also become a trend and trend, and the efficiency of green innovation is one of the criteria for measuring the level of green innovation development, and it is also a measure of the quality of innovation development after comprehensively considering environmental pollution and energy consumption^[8]. Scholars believe that green innovation is a broad expression, as long as it has the novelty and value characteristics of innovation, and can achieve resource conservation and environmental improvement, it can be classified as green innovation. However, some people have proposed that the win-win situation between the green competitiveness of enterprises and the ecological environment is a topic of current research significance, and green technology innovation refers to the technological innovation behavior that follows the ecological principles and ecological economic laws to save resources and energy, so as to avoid, eliminate, or reduce the pollution or damage of the ecological environment^[9]. It can be seen that many scholars have invested in the field

of green innovation, but there are not many studies on the impact mechanism of green innovation and digitalization, so the relationship between the two is still worth considering.

2.3. Enterprise digital transformation and green innovation

Taking digital construction as the starting point to achieve the goal of green technology innovation and green development is a major issue facing all governments. In the process of promoting green development, the implementation of digital transformation can improve the innovation performance of products and services and promote the promotion of green development measures. As a result, many scholars have begun to study the role of digital transformation in promoting green development. Some scholars have taken different research objects to study the role of digital transformation in promoting the green development of enterprises. Based on the panel data of 41 cities in the Yangtze River Delta urban agglomeration, this paper measures the level of urban green transformation from the three dimensions of production, life and ecological space, and studies whether the digital economy, as the key driving force of green development, can empower the green transformation of cities, and finally concludes that the digital economy can help the green transformation of cities by supporting the development of advanced and reasonable industrial structure. With the help of the DID model, it is found that the implementation of digital transformation of enterprises will significantly increase the output of green innovation and development. The two studies not only promote the study of digital transformation and its economic consequences, but also provide theoretical proof and practical insights for promoting the digital transformation of enterprises and improving the green development system.

Different from the above research, some scholars use partial least squares structural equation model to explore enterprises' perceptions of digital maturity and green development based on the strategic action domain theory. The results show that the adaptation of digital technology plays a significant role in the process of green development. When environmental regulation is used as the mediating variable to reveal the impact of digitalization on enterprise green technology innovation, it is found that digitalization can directly promote the level of green technology innovation. Exploring the relationship between digital transformation and green innovation from a digital perspective, the study finds that digital transformation can improve green innovation performance and provide new insights into the drivers of corporate sustainability.

3. The significance of digital transformation and green innovation

3.1. Development status

Text data mining can obtain valuable information and knowledge, and help to collect and analyze large amounts of text data more effectively and conveniently in the field of enterprise digital transformation and green innovation^[15]. After processing these data, the obtained information can be used to carry out research and obtain the necessary resources, so as to help enterprises understand the market prospect faster, help enterprises understand their own level in the market, and thus develop strategies faster to ensure that enterprises are in a favorable position in the market competition. In order to achieve this goal, text mining technology can be used to analyze the current situation of the field and obtain favorable information. This advantage makes text mining have a broad application scenario in the field of enterprise digital transformation and green innovation, and enterprises can realize their own benefits through text mining technology^[16].

In order to understand the current research results of digital transformation and green innovation, the word cloud map is drawn on the text with the help of python software. The specific operations are as follows: First, search the literature related to digitalization and green development from the

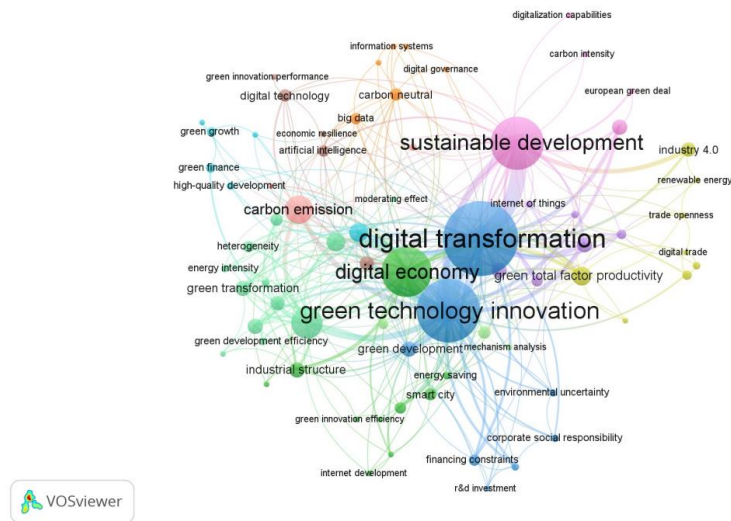


Figure 2: Enterprise digital transformation and green innovation keyword map.

It can be seen that there are most large nodes in the graph, and these nodes are related to digital transformation and green innovation, indicating that enterprise digital transformation and green innovation have attracted the attention of many scholars, and the related academic achievements are constantly enriched. The field of enterprise digital transformation and green innovation pays more attention to digital transformation, green technology innovation, sustainable development and other aspects, which reflects the research hotspots in this field to a certain extent, indicating that research issues related to these aspects have always been the focus of attention of scholars. Meanwhile, the connections among digital transformation, green technology innovation and sustainable development are thicker, indicating that these three keywords have the most co-occurrences and are often studied together by scholars. It also shows that there is a strong connection between these three keywords. Through in-depth study of these three keywords, important information about enterprise digital transformation and green innovation can also be obtained.

3.2. Research value

The coordinated development of greening and digitalization is an intrinsic requirement for high-quality social development. Driven by the sustainable development strategy, the transformation of enterprises is advancing in the direction of green development^[13]. There are many challenges in the process of green development, and digitalization needs to provide solutions. Digitalization provides full-chain support for green development, and green development enables enterprises to move towards a more harmonious and efficient direction driven by digitalization. Using digital transformation to empower the green development of enterprises is a new idea for enterprise transformation and upgrading, and enterprises should seize the opportunity to achieve green development faster through digital transformation.

It is of high academic value to study the digital transformation and green development of enterprises. The mechanism and path of digital transformation to promote green development have attracted the attention of many scholars, and different scholars have given their own opinions on how digital transformation can promote green development^[14]. Looking at the research results of these scholars, although the mechanisms and paths of digital transformation to promote green development are different, on the whole, the research results on this issue are not abundant, and there is still a lot of research space. Studying the mechanism and path of enterprise digital transformation to promote green development from a new perspective, and putting forward new ideas and insights, has certain

theoretical reference significance, and also provides new ideas for follow-up research.

4. Research content of digital transformation and green innovation

4.1. The necessity of enterprise digital transformation

The competition between enterprises is very fierce, if you want to occupy a dominant position in the market, the enterprise needs to have the capital that can maintain the advantage. Digital transformation can discover the characteristics and functions required by the enterprise, improve the business process of the enterprise through digital technology, improve the strength of the enterprise, so as to improve the business infrastructure of the enterprise and enhance the advantages in the industry^[10]. Comparing enterprises, it will be found that some enterprises consume large resources, environmental pollution is relatively serious, and the public pays more attention to them. Such companies are at risk if they do not transform quickly. Therefore, such enterprises should pay more attention to the application of digital technology and actively use digital technology to improve business processes. The existence of digital technology in enterprises is divided into two categories: one is having digital technology; The other is the absence of digital technology. Collect and sort out a number of indicators related to enterprise development of the two types of enterprises, such as operating status, resource utilization, environmental governance, environmental quality and ecological protection; Secondly, by comparing the data of two groups of enterprises in multiple indicators, we observe whether digital technology promotes the progress of enterprises. It will be found that enterprises with digital technology have a stronger survival advantage and are in a favorable position in the market competition. Digital transformation can help organizations improve productivity and transparency in work, thereby saving time and improving resource utilization. In addition, digital transformation can reduce costs, save time and increase revenue by efficiently dealing with problems. The digital transformation of enterprises can also improve the user experience, and the application of digital technology will speed up the work processing speed of enterprises, and the user's experience will be satisfied. Therefore, the digital transformation of enterprises can not only adapt to the changing business market, but also improve the visibility of enterprises, better serve customers, while reducing production costs, and more profitable income.

4.2. The connotation and evaluation system of green innovation of enterprises

The dual carbon strategy is a major development strategy made in combination with the actual situation of China's society, and the proposal of the dual carbon goal requires enterprises to accelerate green transformation and development. Under the dual carbon strategic pattern, green has become the background color of enterprise development^[11]. In order to implement the dual carbon policy, enterprises need to adjust the industrial structure and innovate the mechanism and system, and grasp the connotation of green development to become the basis for the development and transformation of enterprises. The green development of enterprises should be high-quality development, and it is the development of enterprises to obtain benefits while attaching importance to the environment. In the process of development, enterprises should run the dual carbon strategy throughout, and take green development as the orientation of economic development^[12]. In order to comply with the strategic call, enterprises should adhere to concept innovation and accelerate green development actions; adhere to scientific and technological innovation, and accelerate the development of innovative low-carbon technologies; Adhere to model innovation and accelerate the development of green industries. At the same time, enterprises should deeply understand the connotation of green development, adhere to the path of green development, and not obtain economic benefits at the cost of destroying the environment, but reduce environmental pollution and damage through technological innovation,

transformation and upgrading, emission reduction, etc., so as to realize the social responsibility of green development.

In order to measure the status quo of green innovation of enterprises, it is necessary to use a scientific evaluation system to measure green development. In the process of building an ecological civilization, the construction of a scientific and reasonable index system will clearly define green development. According to the new requirements of dual-carbon strategy, the evaluation index system of enterprise green development can be constructed, and the appropriate evaluation method can be selected to construct a comprehensive evaluation model to evaluate the green development status of enterprises.

5. The impact mechanism of digital transformation and green innovation

There is a lot of insight into how digitalization can promote green innovation. The literature related to the research topic of this paper can be classified from two main aspects. The first is the mechanism of digitalization and internal R&D investment and technological innovation. Enterprise digitalization can improve the level of internal human capital, reduce R&D costs, and promote the improvement of R&D investment and R&D output efficiency, thereby enhancing their own technological innovation capabilities^[17]. Based on the perspective of technology integration capability, it is a way to study digital transformation and green development by examining the impact and internal mechanism of the five sub-indicators of digital comprehensive level and its five sub-indicators, digital foundation, digital investment, digital literacy, digital economy and digital application on green technology innovation of resource-based enterprises^[18]. The results show that digital investment has a \cap impact on green innovation, and strong digital integration capabilities play an important role in green development. However, the relationship between digitalization and green technology innovation has not been clarified due to the lack of a unified relationship between R&D investment and green technology innovation in current studies^[19].

The other is the role of the alleviation of external information asymmetry and the improvement of financing capacity in promoting digitalization and green innovation. Enterprise digitalization can promote the transmission and exchange of enterprise information by improving the level of information sharing of enterprises. The flow and integration of a large amount of data and information within an enterprise can significantly enhance the transparency of enterprise information^[20]. At the same time, the flow of information allows for the rapid output of usable information^[21]. Digitalization should conform to the current trend of building a "digital China" and a "smart society" in the forefront of the transformation model, and that the signal effect released by enterprises in line with national policies and strategies is more likely to be favored by the market, so enterprises are often more willing to increase R&D investment and improve the quality of their own development in order to continue to obtain government innovation resources and market financing support^[22]. Scholar proposed that when enterprises face severe financing constraints, investment in green innovation will be reduced, but digitalization can release a positive signal to the outside world that enterprises have good development prospects, which will help improve their financing ability^[23]. Many scholars have given their own opinions on how to promote green innovation, but there is still little further research on the influencing factors between the two. Therefore, it is still of great significance to focus on the mechanism of digitalization and green innovation.

In the process of problem research, the research methods used can be classified into the following aspects. Text Analysis. Using intangible asset data to measure the digital level of enterprises, the annual reports of listed companies are studied in detail through text analysis, and the proportion of digital word frequency is depicted, and then the impact of digitalization on green innovation is measured, and it is found that digitalization has a good role in promoting green innovation^[24]. Based

on the data of A-share listed companies in Shanghai and Shenzhen from 2011 to 2019, some scholars have explored the internal mechanism of the digital economy affecting enterprises' continuous green innovation through digital transformation under the "dual carbon" goal^[25]. It is concluded that the digital economy can promote digital transformation and continuous green innovation of enterprises. Theoretical analysis. Based on the resource allocation theory, a model of the impact mechanism of digitalization on the green transformation of enterprises is constructed, and the moderating role of the internal transmission mechanism is explored^[26]. Model analysis method. Based on the research sample of 211 manufacturing enterprises, a model of digital transformation, green innovation, and green competitive advantage is constructed, which has reference significance for promoting the integration of digitalization and greening^[27].

To sum up, the research results on green development and enterprise digital transformation have been very rich, and the promotion effect of enterprise digital transformation on green development has also attracted the attention of many scholars, and the research results in related fields are more abundant. However, the mechanism of enterprise digital transformation to promote green development is still in a blank stage, and there are not many related contributions^[28]. Many scholars only came to the conclusion that digital transformation can promote green development, but did not conduct in-depth research on the mechanism of enterprise digital transformation to promote green innovation, and did not clarify the mechanism of enterprise digital transformation to promote green innovation. The current research is more theoretical results, and the results involving quantitative research are not outstanding. At the same time, in the context of the digital era, the digital transformation of enterprises will become a future trend, and it is more valuable to study the digital transformation of enterprises to promote green development.

According to the mechanism path of digital transformation to promote green innovation, the specific path diagram of digital transformation to green innovation can be drawn, so as to more clearly show how enterprise digitalization affects green innovation. The final result is shown in Figure 3.

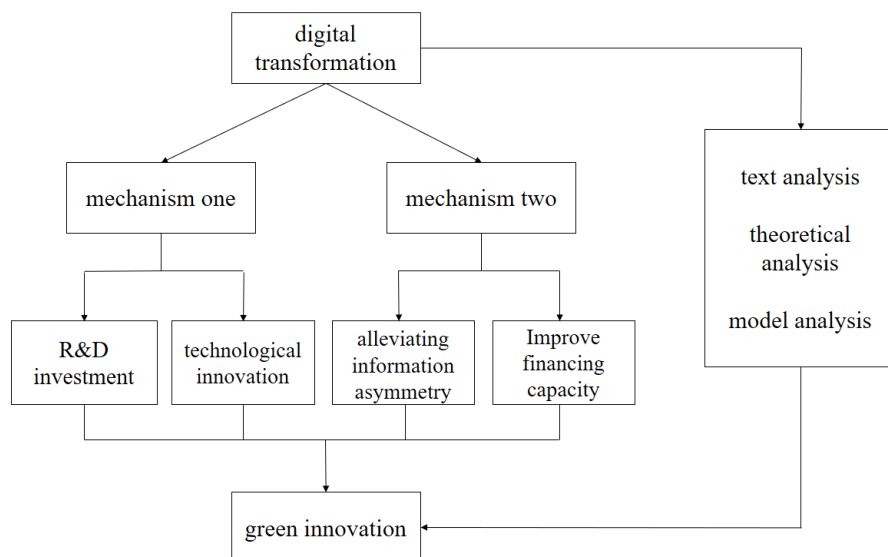


Figure 3: The mechanism path of digital transformation to promote green innovation.

6. Conclusion and outlook

This paper summarizes the relationship between enterprise digital transformation and green innovation. It is found that the digital transformation of enterprises has been integrated into all aspects of enterprises, which plays an important role in promoting the technological progress and efficiency

improvement of enterprises. The introduction of green innovation into the digital transformation of enterprises meets the requirements of sustainable development, which is conducive to providing a good innovation environment for enterprises and promoting the implementation and construction of digital transformation of enterprises^[29]. With the country's emphasis on digital transformation, how to better combine digital transformation and green innovation has become a research topic for more people. At present, scholars have made research on digital transformation and green innovation, but in general, the research results are not abundant, the degree of research in this area is not in-depth, and the mechanism between the two is not clearly explained. Therefore, digital transformation and green innovation are still a research topic, and more results are still needed to explore the relationship between the two. Based on this, the outlook is proposed from the following aspects.

Enterprises should pay attention to the development of digital technology. Technology competition and development are more focused on green and digital fields; Green development and digital transformation jointly promote high-quality development, which has become the main theme of global economic recovery^[30]. Under the long-term guidance of the sustainable development strategy, green transformation and upgrading of enterprises has become a new trend for the future development of enterprises. At the same time, in the context of the digital era, enterprises need to adapt to the trend of the times and develop in the direction of digital transformation. Under the combined influence of digitalization and greening, using digital transformation to empower green development has become a more effective way for enterprises to transform and upgrade^[31]. In the future, the green development of enterprises will be driven by digital transformation, so that the transformation and upgrading of enterprises will develop in the direction of higher quality and efficiency.

Enterprises will take green innovation as the future development direction. On the one hand, great progress and remarkable results have been achieved in green technology innovation. The scale of green technology innovation continues to grow, the green technology innovation network has been gradually established, the guarantee of green technology innovation has been increasingly improved, and at the same time, significant progress has been made in the protection of green technology property rights and the construction of green technology talent team, and the level of green technology innovation has been continuously improved. On the other hand, the level of green technology innovation still has broad development prospects, and further breakthroughs are needed in the depth of innovation, quality and key core technologies, and there is still room for improvement in the supporting role of green technology. Therefore, enterprises need to strengthen market orientation, improve the work of green technology innovation system, integrate green innovation into daily production and operation, and provide impetus for enterprise development.

Further explore the mechanism and path of enterprise digital transformation, and promote green innovation. In today's world, digital transformation is advancing in an all-round way, and enterprises should take digital transformation as the starting point to promote the green development of enterprises. At present, there are few theoretical contributions to promoting green innovation through enterprise digital transformation, and it is difficult for enterprises to carry out technological innovation according to existing achievements. Therefore, studying the mechanism path of digital transformation to promote green development not only has rich theoretical value, but also has practical significance. On the basis of the study of the existing theoretical mechanism of enterprise green development, this paper summarizes and puts forward other appropriate conjectures. To this end, scholars can summarize the existing literature and understand the mechanisms and paths of digital transformation to promote green innovation. At the same time, the existing results need to be improved, put forward their own new insights and verification, and make new contributions to the digital transformation and green innovation of enterprises, on this basis, enterprises find their own development path.

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References

- [1] Qi Y D, Du B, Wen X. Digital strategy transformation of State-owned enterprises: Mission embedding and model selection: a case study based on the typical digitalization practices of three central enterprises[J]. *Journal of Management World*, 2021, 37(11): 137-158+10.
- [2] Zhou H H, Li H X, Zhao L R. Research on the impact of digital transformation in manufacturing industry on green innovation performance: the moderating effect of digital level[J]. *Journal of Science and Technology Management*, 2021, 23(1): 33-43.
- [3] VIAL G. Understanding digital transformation: a review and a research agenda[J]. *The Journal of Strategic Information Systems*, 2019, 28(2): 118-144.
- [4] Zhang H N. Historical opportunities and key implications of digital transformation enabling high-quality education development[J]. *e-Education Research*, 2023, 44(6): 60-65.
- [5] Zhang P, Zhang M M. The digital transformation path of manufacturing enterprises from the perspective of dynamic capability: based on the case study of Buke Company[J]. *Quarterly Journal of Management*, 2021, 6(2): 79-100+149-150.
- [6] Fang W L, Nie W N, Lai D. Enterprise digital transformation, resource allocation and green innovation capability[J]. *Finance and Accounting Monthly*, 2023, 44(13): 139-145.
- [7] Qi H J, Liu S Q. Do green finance policies promote corporate green innovation? Evidence from the Green Finance Reform and Innovation Pilot Zone[J]. *Journal of Contemporary Finance & Economics*, 2023(3): 94-105.
- [8] Liu J, An K K. Efficiency evaluation and influencing factors analysis of green innovation in China's tourism industry under the goal of "double carbon"[J]. *Journal of Southwest Minzu University (Humanities and Social Science)*, 2022, 43(10): 29-40.
- [9] Zhao Q Z, Jia D, Xiang K. Research on the effect of R&D subsidies and environmental regulation on green technology innovation: a spatial Durbin model test considering policy coupling[J]. *Journal of Industrial Technological Economics*, 2023, 42(5): 114-123.
- [10] Xu X F, Wei T H, Wang J J, et al. New information technology pressure advantages under digital transformation variation: a hybrid analysis of a multi-level model[J]. *Science of Science and Management of S. & T*, 2023, 44(6): 50-64.
- [11] Hu H H, Shen J. Digital economy, green innovation and the "dual carbon" goal - the "emission reduction" and "efficiency" perspective[J]. *Journal of Nanjing University of Finance and Economics*, 2023(4): 79-88.
- [12] Chen J H, Xin Y. Study on the impact of digital economy on regional disparity of high-quality economic development [J]. *East China Economic Management*, 2023, 37(2): 1-12.
- [13] Liang B H. Influence mechanism and driving path of digital economy to promote common prosperity[J]. *Journal of Technical Economics & Management*, 2023(5): 115-121.
- [14] Li B J, Cao B, Zhou F. Innovation ecosystem symbiosis, green technology innovation and high-quality development of low-carbon economy[J]. *Statistics & Decision*, 2023, 39(16): 48-53.
- [15] Zhang W C. The situation of the application of artificial intelligence in education under the background of digital transformation of education -- an analysis based on text data mining[J]. *Education Sciences in China (In Chinese and English)*, 2023, 6(3): 52-60.
- [16] Yi X M, Wang Z H, Chen J, et al. Digital transformation and enterprise green technology innovation: a study based on big Data text mining[J]. *Journal of Beijing Institute of Technology (Social Sciences Edition)*, 2023, 25(5): 159-170.
- [17] Shen M H, Tan W J. Digitalization and enterprise green innovation performance: Based on the dual effect identification of incremental and qualitative improvement[J]. *South China Journal of Economics*, 2022(9): 118-138.
- [18] Wang F Z, Liu X L, Zhang L, et al. Does digitization promote green technology innovation in resource-based enterprises? [J]. *Studies in Science of Science*, 2022, 40(2): 332-344.
- [19] Liu J, Li Z H, Wei F X. The influence of digitization level and R&D investment on green technology innovation[J]. *West Forum on Economy and Management*, 2022, 33(5): 37-46.
- [20] Xiao H J, Yang Z, Liu M Y. Promoting effect of corporate digital social responsibility: a test of internal and external dual paths[J]. *Business and Management Journal*, 2021, 43(11): 52-69.
- [21] Wang S H, Xu X T, Liu Y W. Will digital transformation Reduce debt default risk? [J]. *Securities Market Herald*, 2022(4): 45-56.
- [22] Wu F, Hu H Z, Lin Y H, et al. Corporate digital transformation and Capital market performance: Empirical evidence from equity liquidity[J]. *Journal of Management World*, 2021, 37(7): 130-144+10.

- [23] Jin Y, Wen W, He Y. The impact of digital transformation on corporate green innovation: based on empirical evidence from listed manufacturing companies in China[J]. *Finance and Trade Research*, 2022, 33(7): 69-83.
- [24] Zhong T Y, Ma F Q. Carbon reduction effect of enterprise digital transformation: theoretical mechanism and empirical test[J]. *Jianghai Academic Journal*, 2022(4): 99-105.
- [25] Li J C, Lian G H, Xu A T. The game-breaking way of enterprise green transformation under the vision of "dual carbon" -- an empirical study of digitalization driving greening [J]. *Journal of Quantitative & Technological Economics*, 2023, 40(9): 27-49.
- [26] Cao Y, Li X, Hu H L, et al. How can digitalization drive green transformation of manufacturing enterprises? -- An exploratory case study from the perspective of resource scheduling theory [J]. *Journal of Management World*, 2023, 39(3): 96-112+126+113.
- [27] Wang C. Manufacturing digital transformation, organizational resilience and corporate competitive advantage reconstruction [J]. *Business and Management Journal*, 2023, 45(7): 76-93.
- [28] Luo J. How can digitalization enable the green development of manufacturing [J]. *Contemporary Finance & Economics*, 2023 (7): 108-120.
- [29] Zhang C X, Yu P P. Digital transformation and double cycle new development pattern [J]. *Journal of Yunnan University of Finance and Economics*, 2023, 39(3): 81-97.
- [30] Huang B, Li H T, Liu J Q, et al. Digital technology innovation and high-quality development of Chinese enterprises: Evidence from enterprise digital patents [J]. *Economic Research Journal*, 2023, 58(3): 97-115.
- [31] Xue H X. Research on the coupling and coordination of digital transformation and green development in manufacturing industry under the background of "dual carbon"[J]. *Regional Economic Review*, 2023(3): 101-110.