

# Influence of Environment Factors on Enterprise Management Decision and the Coping Strategies

Jizhao Ji<sup>1,a,\*</sup>, Limin Chen<sup>1,b</sup>

<sup>1</sup>Lyceum of the Philippines University, Manila, 1002, Philippines

<sup>a</sup>jizhao.ji@lpunetwork.edu.ph, <sup>b</sup>limin.chen@lpunetwork.edu.ph

\*Corresponding author

**Abstract:** This paper intends to explore the main environmental problems faced by high-tech companies in the process of innovation and development. Through the analysis of the current situation of the growth and development of enterprises, the differences between enterprises and developed countries and regions in environmental innovation and development ability and the reasons are obtained, and the importance of environment to the innovation and growth of high-tech enterprises is obtained. Meanwhile, taking the relationship between enterprises and environment as the starting point, the environmental factors are divided into two types, one is direct environmental factors, the other is indirect environmental factors. They have carried out a comprehensive analysis and research on the enterprise's own institutional environment, enterprise behavior environment, talent environment, financing environment, research and development environment, social legal system environment, market environment and supporting environment that affect the innovation and growth of high-tech enterprises. This paper attempts to analyze the development and change process of economic, financial, legal and other environments in the growth and development of high-tech enterprises, and its impact on the innovation and growth of enterprises, so as to reduce the deficiency of the growth and development ability of enterprises. The finance environment score is 7.4; the legal and policy environment score is 6.2; the technology environment score is 8.1, and the human resources environment score is 6.8. In the research on the innovative growth of Chinese enterprises, the most important thing is to combine various environmental factors that affect the development of enterprises. This paper is helpful to explore the mode of innovative growth of enterprises from the perspective of environment.

**Keywords:** Environmental Factors, Enterprise Operation, Financing Environment, Technical Environment, Industrial Environment

## 1. Introduction

In the increasingly fierce market competition, every company is trying to improve its operating efficiency, and the key to improve operating efficiency is to improve its management ability. Through the incentive mechanism, talent can be attracted and they can work in the organization for a long time. The incentive mechanism can be used to enable employees to better use their skills and talents, turn passive into active, and thus ensure the quality and efficiency of work. Through the motivation of employees, it can better mobilize the enthusiasm of employees and the spirit of innovation, so that the performance of employees has been greatly improved.

The environmental factors of a business are decisive for its development. Using both macro and micro levels of data, Xiong Ailun built a gender equality index and conducted a series of empirical studies based on the World Bank's corporate survey data. Overall, companies with female investors are more likely to use differentiation strategies and train their employees. They are less likely to make innovative decisions than companies where all investors are male [1]. Ren Guangqian argued that under the constraints of environmental regulation, the nature of a company's property rights and the level of corporate governance are key factors that have an impact on a company's incentives to engage in environmental protection. He selected five listed companies in five major polluting industries in China and explored the mechanism of the influence of internal corporate factors on corporate environmental behavior starting from 2016-2019 [2]. In order to deal with the increasingly severe environmental pollution problem and alleviate the problem of "working mechanism of environmental protection inspectors" in the implementation of the "Environmental Protection Inspectors Plan (Trial)" by local governments, Du Jianjun proposed the idea of building "working mechanism of environmental

protection inspectors" [3]. Control environment plays a highly important role in internal control, but their study did not consider the influence of environmental factors on the business.

This paper provides a more detailed analysis of the environmental factors affecting the high-tech industry's development in China. This paper analyzes the relationship between enterprises and environment from the perspective of the direct environment that affects the development of enterprises, that is, the institutional innovation environment of enterprises, the enterprise behavior (entrepreneur behavior) environment, the talent environment, the financing environment, and the indirect environment that they have on the development of enterprises, that is, the research and development environment, the social law and policy environment, the market environment and the supporting environment. This highlights the importance of exploring the growth pattern of high-tech enterprises from an environmental perspective. Based on the analysis of the environmental factors affecting the growth of high-tech enterprises and the actual situation of China, this paper constructs and improves the environmental model suitable for the growth of high-tech enterprises in China, and provides some policy suggestions for improving the implementation effect of the model.

## **2. The impact of Business Decisions and Corresponding Strategies**

### ***2.1 Characteristics of the Growth Environment of High-Tech Enterprises***

#### **(1) Integrity**

Each component factor of the growth environment does not exist independently, but interacts and restricts each other. Together, they form an organic environmental system, and high-tech enterprises are developed in such an overall system [4-5].

#### **(2) Dynamic nature**

The environmental factors that affect the growth of high-tech enterprises are also continuously changing, so the growth path of enterprises is also changing [6]. Today, as modern science and technology are developing rapidly, human social production and all kinds of socio-economic relations are also developing at a rapid pace.

#### **(3) Complexity**

Talent supply, economic environment, industrial development, financing environment and other factors can have a direct or indirect impact on the development of high technology, advanced and new technology enterprises. These elements that make up the growth environment of an enterprise can form different combinations when external conditions change. Therefore, it would have a differentiated impact on high-tech enterprises and lead to completely different growth paths of high-tech enterprises [7-8]. The environment of high-tech enterprises is a very complex system.

#### **(4) Uncontrollability**

This paper argues that some environmental problems faced by Chinese high-tech enterprises in the process of development are difficult to control [9]. Although the company can have a certain impact on the external environment by providing products, services, information and other means, its role is very limited. In order to achieve long-term development, enterprises must adapt to changes in environmental factors and maintain a dynamic balance with them [10]. This paper mainly from the financing environment, law and policy environment, technology environment, human resources environment, economic and market environment, industrial environment to explore several aspects.

### ***2.2 Environmental Factors***

#### **(1) Legal and policy environment**

The legal and policy environment includes two levels: legal and policy, which are the basis of influencing the development of high-tech enterprises [11-12]. Policy environment refers to the macro-control of the development of high-tech industry by the state, mainly including law, guidance, intermediary, coordination, service and so on. The rule of law environment mainly refers to the way the state uses the rule of law to protect, support, guide and restrict high-tech enterprises.

First of all, a sound legal and policy environment is not only an important factor to promote the healthy development of small and medium-sized science and technology enterprises, but also an

important factor to restrict the healthy development of small and medium-sized science and technology enterprises in China. Secondly, high-tech enterprises are high-risk industries. In the process of their development, their technological innovation, financing and management are all highly uncertain, which requires the state to issue a series of laws and regulations to regulate and guide them [13]. Secondly, for small and medium-sized high-tech enterprises, patents, trademarks and technical secrets are the most important intangible assets and the basis for their survival and development. If intellectual property theft occurs in high-tech enterprises, they would not only be unable to get the benefits of previous venture capital, but also need to pay high legal fees, which would increase their costs. Therefore, for small and medium-sized high-tech enterprises, the legal protection of their intellectual property rights and the soundness of relevant policies would directly affect whether they can grow smoothly. Finally, compared with other types of enterprises, the middle and lower level of high-tech enterprises have smaller scale and lower survival rate, and are often in a weaker position in market competition. Therefore, the growth of high-tech enterprises needs policy support from the government [14].

#### (2) Financing environment

Under the conditions of market economy, the financing of high-tech enterprises can usually be divided into two categories: one is internal financing and the other is external financing [15-16]. Endogenous financing, also known as endogenous financing, refers to the funds raised from within the company to meet the needs of its production and operation. External financing refers to the investment of enterprises through raising funds to support their own production and business activities [17].

Capital is the basis for the survival and development of a company, and it is the necessary condition for the development of a company. Compared with general enterprises, their operation has uncertain factors, and there is a serious information asymmetry between them and capital providers. Moreover, their tangible assets are limited, and it is difficult to provide property collateral, which results in a great difference between their financing and other enterprises. Even a mature capital market can not necessarily provide them with a good financing environment, so their financing environment depends more on the financing mechanism in the capital market. Specifically, the level of development of the capital market is determined by the number of financing channels and the composition of the financing structure. The more financing channels there are, the more funds can be available for technology-based high-tech enterprises [18-19].

#### (3) Technical environment

Technological environment refers to the technological elements in the environment where high-tech enterprises are located, as well as the conditions of various scientific and technological forces associated with them, which mainly includes the technological research and development environment and the degree of transformation of scientific and technological achievements [20]. The development of high-tech enterprises cannot be separated from technological innovation, and technological innovation is the driving force for the growth of high-tech enterprises. First of all, the technological R& D environment of an enterprise has a direct impact on the frequency, degree and number of achievements of technological innovation activities. The products of high-tech enterprises have high-tech characteristics, and most of their research and development technologies come from scientific research institutes in the region. Without their scientific and technological innovation, the development of high-tech enterprises would stall. At the same time, the research environment also needs to be based on research funding, and most early research efforts do not bring any economic benefits to researchers. Therefore, regional R& D (Research and Development) investment also has a certain impact on the local research environment. Secondly, technology transfer and diffusion, as an important link in the transformation of technological achievements into products, directly affects the development and development of high-tech enterprises.

#### (4) Human resource environment

Human capital is the sum of knowledge, skills and intelligence created by workers through their own labor. The number and level of scientific research institutions and researchers within the enterprise, the cultivation and reserve of talents within the enterprise, and the cultural quality of the whole people have a great impact on the development of the enterprise. Therefore, among many production factors, human capital plays the most critical role in the growth of high-tech enterprises. China's high-tech industry is of great significance to the development of the entire high-tech industry. It can be seen that high-quality talents are of great significance to the development of high-tech small and medium-sized enterprises. Secondly, a region with more research institutions can better attract more researchers and produce more research results in a more concentrated way. Furthermore, because high-tech enterprises themselves have relatively few human resources, and because high-tech enterprises are small and

high-risk, it is difficult to attract a large amount of high-tech enterprises, so the establishment of a set of effective talent support system is crucial to guarantee the successful development of high-tech high-tech enterprises.

#### (5) Economic and market environment

The development of enterprises has a great relationship with a country's economic development level, scientific and technological development level and industry market prosperity. The stage of economic development, the level of economic development, the economic system, the income level of consumers, the way of consumption, and the opportunities for investment are the main factors that constitute economic development. As a key link in a country's economic system, the growth process of high-tech enterprises is inevitably affected by regional social and economic operation and development trend, and has long-term and profound. Second, most high technology, advanced and new technology enterprises are emerging small businesses. As a region becomes more developed, not only does its infrastructure improve, but financing becomes less difficult and financing technological innovations becomes easier, which is why developed high-tech regions attract more entrepreneurs. Moreover, the higher the level of economic development, the greater the market demand for the business.

Euler's formula shows the operational relationship of complex numbers, which can be viewed as the synthesis of multiple elements in the development of an enterprise, such as technology, product, market demand, and business model:

$$E^L = \mu x + i * \sin(x) \quad (1)$$

$i$  is an imaginary unit,  $x$  is an angle.

In an enterprise context, the golden ratio  $\Phi$  can be interpreted as the concept of striving for the best balance:

$$\Phi = (1 + \beta) / 2 \quad (2)$$

Just as the golden ratio is regarded as the most beautiful ratio in geometry and art, businesses need to find the best balance to maintain their sustainability. This can be reflected in corporate decisions, such as in resource allocation, risk management and innovation inputs, where companies need to weigh different stakeholders and strive to achieve the most efficient and profitable outcomes.

In addition to its high dependence on capital, talent and technology, the development of its related industries is also an important basis for the growth of enterprises. Therefore, the development of a company is closely related to the industrial market environment in which it is located. The growth of any company is affected by the market environment in which it operates. Market concentration, market access barriers and so on can well reflect the change of market system. The higher the concentration, the greater the dominance of a small number of companies. As a socialist market economy country, the social economy is led by the market. The degree of market demand for products would also directly affect the product sales of enterprises, and the greater the degree of market demand for products, the greater the size of the market. The products of high-tech enterprises have the characteristics of high-tech, and the company's product update speed is much faster than other products. The company must constantly discover and explore the needs of the market, in order to timely develop new products to meet customer requirements, the company can continue to develop. Therefore, the market environment factor is also an essential environmental factor that has an impact on the growth of technology-based advanced and new technology enterprises. Science and technology enterprises should coordinate the relationship between enterprise development goal and market demand.

#### (6) Industrial environment

The industrial development environment mainly refers to the regional industrial base where the high-tech enterprises are located and the connection between them and the regional industries. For high-tech enterprises, rapidly developing high-tech industries in the region where they are located is the key to their growth and development. The knowledge spillover effect generated by the development of high-tech industries makes it easier for high-tech advanced and new technology enterprises in the region to access innovation resources, and the more easily accessible the innovation resources are, the stronger the innovation capacity of the enterprises can be. Meanwhile, the development of high-tech industries in the region can promote the construction of high-tech talent and reduce the labor search costs of high-tech advanced and new technology enterprises. The examples of countries with relatively developed high-tech enterprises show that high-tech enterprises are more likely to take root in areas with good high-tech industry environment. With more and more high-tech enterprises joining in, it

would also promote the formation of high-tech enterprise clusters in this region. With the formation of high-tech enterprise clusters, the corresponding infrastructure and service intermediaries would develop rapidly, and at the same time, they can provide higher quality services for enterprises in the region, thus promoting the development of high-tech enterprises.

### 3. Results of Business Decision-Making

At present, the financing methods of enterprises are mostly endogenous financing that is, absorbing their own funds, partnership funds and retained earnings. External funding sources are mainly direct funding sources. From the perspective of indirect financing, it is mainly joint-stock commercial banks with high-tech enterprises as the main body and state-owned joint-stock commercial banks as the auxiliary. The main sources of funds are medium-sized joint-stock commercial banks, local commercial banks and credit cooperatives. In addition to these, there is the national budget, foreign investment, private loans and so on. Because there are uncertain factors in many aspects, such as development prospects, profitability, etc., direct financing such as equity financing and corporate bonds are relatively seldom used in China. At present, China's high-tech sector is mainly financed by banks and bank loans, with investment from other countries and governments accounting for only a small part, and bond financing is almost zero.

The listed numbers of high-tech enterprises on the high-tech enterprise board and the growth enterprise board are shown in Table 1. The number of high-tech enterprises listed on the eastern high-tech enterprise Board and the Growth Enterprise Market (GEM) was 7 in 2018. The number of high-tech enterprises listed on the central high-tech enterprise Board and the GEM was 54 in 2018, and the number of high-tech enterprises listed on the western high-tech enterprise board and the GEM was 20 in 2018 (2024 is the forecast year for the next year of corporate management decisions).

*Table 1: Number of listed high-tech enterprises on the high-tech Enterprise Board and the Growth Enterprise Board*

Year	Eastern	Middle part	West
2017	59	12	3
2018	7	54	20
2019	86	54	36
2020	65	23	1
2021	4	61	28
2022	72	12	37
2023	23	68	35
2024	57	58	1

The accumulated funds in place of enterprise project innovation fund are shown in Table 2. In 2017, the planned investment is 4.2 billion, and the amount of capital in place is 2.5 billion. In 2018, the planned investment is 14.4 billion, and the amount of capital in place is 2.9 billion.

*Table 2: The accumulated funds in place of the enterprise project innovation fund*

Year	Planned investment amount (100 million yuan)	Paid-in capital amount (100 million yuan)
2017	42	25
2018	144	29
2019	149	90
2020	206	103
2021	261	123
2022	267	124
2023	404	134
2024	488	183

The basic overview of scientific research in China over the years is shown in Figure 1. In 2017, the total R&D expenditure was 402.04 billion yuan, and the number of patent applications authorized was 319,000. In 2018, the total R&D expenditure was 441.33 billion yuan, and the number of patent applications authorized was 402,000. In 2019, the total R&D expenditure was 500.04 billion yuan, and the number of patent applications authorized was 477,000.

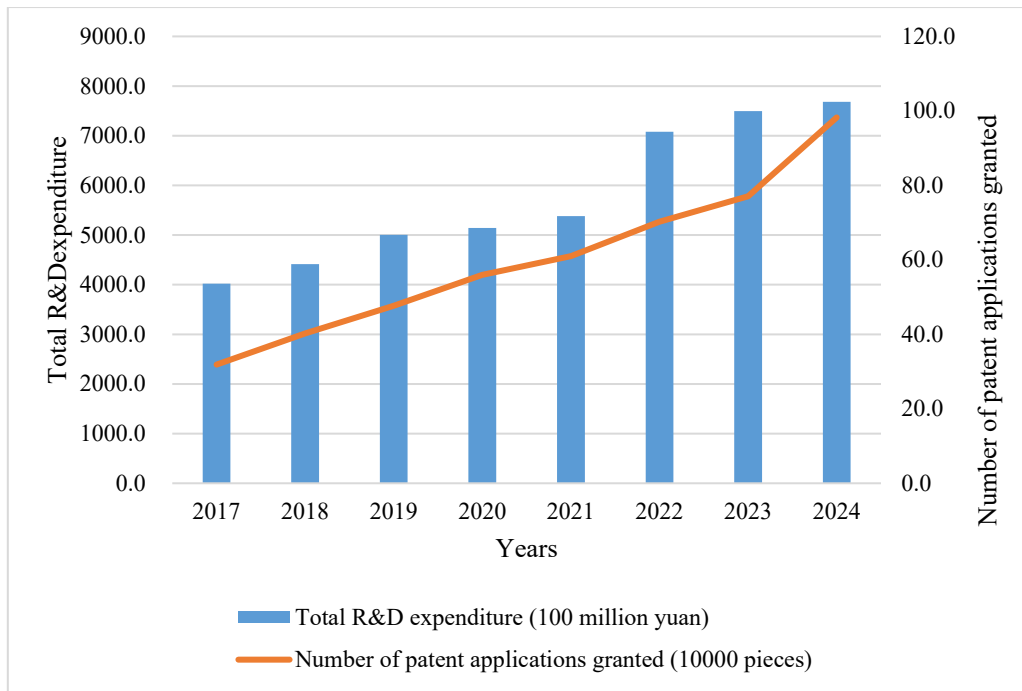


Figure 1: Basic overview of scientific research in China over the years

The labor mobility index of each province and the number of scientific research institutions are shown in Figure 2. The horizontal coordinate is the province, which is represented by A to J respectively. The labor mobility index of A province is 4.8, and the number of scientific research institutions is 25. The labor mobility index of Province B is 1.1, and the number of scientific research institutions is 296. The labor mobility index of Province D is 11.5, and the number of scientific research institutions is 242.

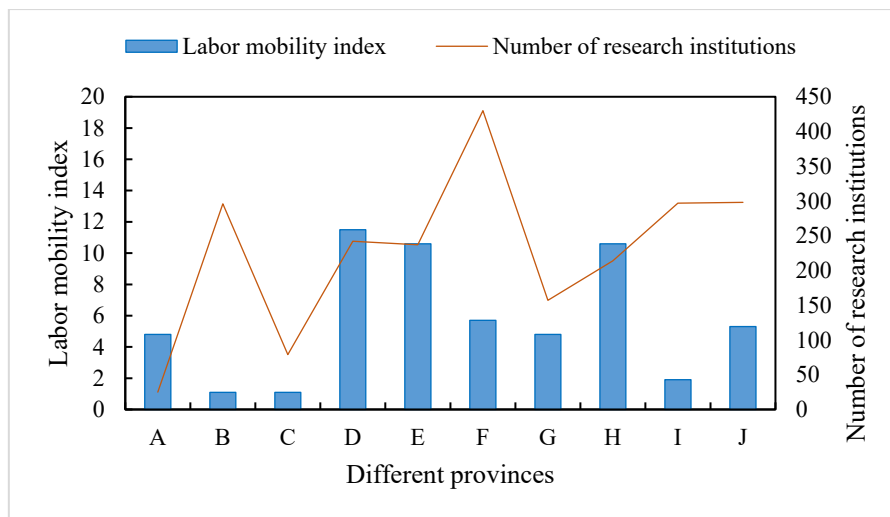


Figure 2: Labor mobility index and the number of scientific research institutions in each province

This paper invited 10 experts to evaluate the growth environment, and the sub-evaluation of the growth environment is shown in Figure 3. The average score of each growth environment sub-category is calculated, and the financial environment score is 7.4, the legal and policy environment score is 6.2, the technology environment score is 8.1, and the human resources environment score is 6.8.

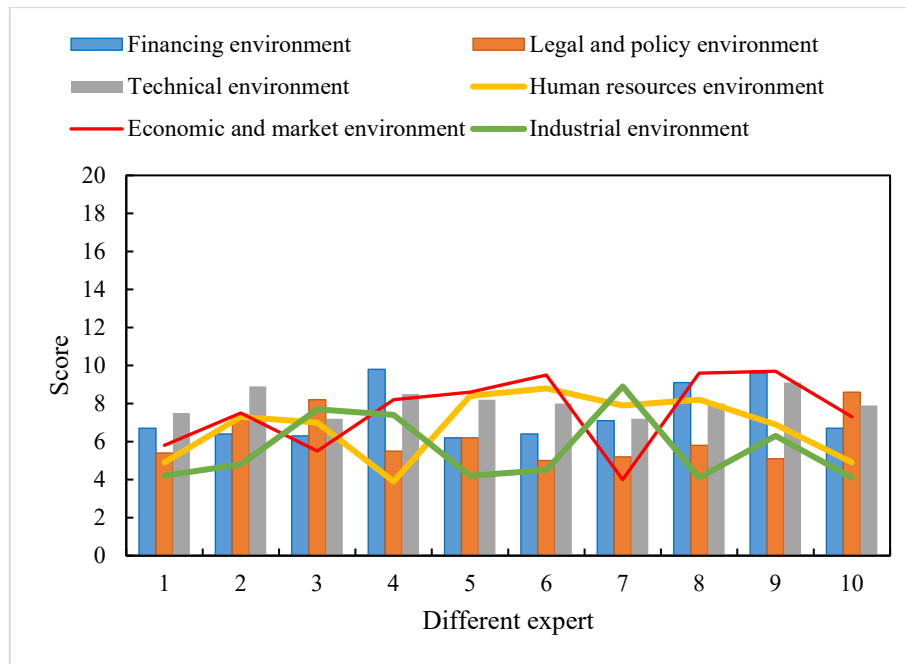


Figure 3: Sub-assessment of growth environment

#### 4. Conclusions

As China is in the process of economic transformation, the development speed of high-tech industry is very fast and great achievements have been made. After China's successful entry into the World Trade Organization, Chinese high-tech enterprises would face the challenge of strong enterprise groups from other countries. How to choose the right way for their own development, improve their competitiveness, improve their comprehensive strength, is a very meaningful problem. On the basis of the purpose and significance of environmental research, the importance of environmental research is realized. Environmental research for high-tech enterprises can help them find development opportunities and avoid threats encountered in development. From the angle of environment, this paper makes a profound analysis of the development status of high-tech enterprises, sums up the development process of high-tech enterprises, and studies the status and function of high-tech enterprises in China's national economy. At the same time, this paper only gives a macro environmental model in theory, although it is combined with case analysis, but in order to truly apply it to the practice, it still needs to conduct more in-depth research and provide relevant technical support, hoping to improve the research in the future.

#### References

- [1] Xiong Ailun, Wang Zijuan, Zhang Yong, etc. Gender heterogeneity and corporate decision-making: A comparative study from the perspective of culture. *Manage the world*, 2018, 34(6): 127-139.
- [2] Ren Guangqian, Zhou Xueya, Li Xinyi, etc. The nature of property rights, corporate governance and corporate environmental behavior. *Journal of Beijing Institute of Technology (Social Sciences Edition)*, 2021, 23(2): 44-55.
- [3] Du Jianjun, Liu Hongru, Wu Haoyuan. The impact of the environmental protection inspector system on the investment of enterprises in environmental protection. *China's population, resources and environment*, 2020, 30(11): 151-159.
- [4] Tagne, J. S., Ningaye, P., & Kobou, G. The Effects of Openness on Managerial Innovation in Cameroonian Companies. *Journal of Organizational and End User Computing (JOEUC)*, 2021, 33(4), 28-43.
- [5] Zhang Tao, Liu Kuanbin, Xiong Xue. Comparative study on the production efficiency of Chinese state-owned and private manufacturing enterprises. *Quantitative economy, Technology and economic research*, 2018, 35(6): 78-94.
- [6] Bienhaus F, Haddud A. Procurement 4.0: factors influencing the digitisation of procurement and supply chains. *Business Process Management Journal*, 2018, 24(4): 965-984.

- [7] Liao Z, Dong J, Weng C, et al. CEOs' religious beliefs and the environmental innovation of private enterprises: The moderating role of political ties. *Corporate Social Responsibility and Environmental Management*, 2019, 26(4): 972-980.
- [8] Calabrese A, Costa R, Levaldi Ghiron N, et al. Materiality analysis in sustainability reporting: A tool for directing corporate sustainability towards emerging economic, environmental and social opportunities. *Technological and Economic Development of Economy*, 2019, 25(5): 1016-1038.
- [9] Caseiro N, Coelho A. The influence of Business Intelligence capacity, network learning and innovativeness on startups performance. *Journal of Innovation & Knowledge*, 2019, 4(3): 139-145.
- [10] Cucari N, Esposito De Falco S, Orlando B. Diversity of board of directors and environmental social governance: Evidence from Italian listed companies. *Corporate Social Responsibility and Environmental Management*, 2018, 25(3): 250-266.
- [11] Adebisi S A, Bakare N A. Survival strategies and sustainability of small and medium enterprises in a volatile environment. *Management Dynamics in the Knowledge Economy*, 2019, 7(4/26): 553-569.
- [12] Chen Y Z, Xiao X Y, Wang Y, et al. Severity index-based voltage sag insurance for high-tech enterprises. *IET Generation Transmission & Distribution*, 2020, 14(24):5992-5999.
- [13] Hanaysha J R. An examination of the factors affecting consumer's purchase decision in the Malaysian retail market. *PSU Research Review*, 2018, 2(1): 7-23.
- [14] Li Z, Liao G, Albitar K. Does corporate environmental responsibility engagement affect firm value? The mediating role of corporate innovation. *Business Strategy and the Environment*, 2020, 29(3): 1045-1055.
- [15] Bartolacci F, Caputo A, Soverchia M. Sustainability and financial performance of small and medium sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, 2020, 29(3): 1297-1309.
- [16] Dzwigol H, Dzwigol-Barosz M, Kwilinski A. Formation of global competitive enterprise environment based on industry 4.0 concept. *International Journal of Entrepreneurship*, 2020, 24(1): 1-5.
- [17] Mishra R, Singh R K, Koles B. Consumer decision-making in Omnichannel retailing: Literature review and future research agenda. *International Journal of Consumer Studies*, 2021, 45(2): 147-174.
- [18] Orazalin N, Baydauletov M. Corporate social responsibility strategy and corporate environmental and social performance: The moderating role of board gender diversity. *Corporate Social Responsibility and Environmental Management*, 2020, 27(4): 1664-1676.
- [19] Warnick B J, Murnieks C Y, McMullen J S, et al. Passion for entrepreneurship or passion for the product? A conjoint analysis of angel and VC decision-making. *Journal of Business Venturing*, 2018, 33(3): 315-332.
- [20] Weston P, Nnadi M. Evaluation of strategic and financial variables of corporate sustainability and ESG policies on corporate finance performance. *Journal of Sustainable Finance & Investment*, 2023, 13(2): 1058-1074.