

## Retraction

# Retracted: Improving and Evaluating Business Management in the Digital Economy Based on Data Analysis

### Security and Communication Networks

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] L. Sun and Y. Wang, "Improving and Evaluating Business Management in the Digital Economy Based on Data Analysis," *Security and Communication Networks*, vol. 2022, Article ID 5908877, 7 pages, 2022.

## Research Article

# Improving and Evaluating Business Management in the Digital Economy Based on Data Analysis

Lu Sun <sup>1</sup> and Yanwen Wang <sup>2</sup>

<sup>1</sup>School of Public Finance & Taxation, Guangdong University of Finance & Economics, Guangzhou 510320, China

<sup>2</sup>Guangdong Provincial Key Laboratory of Public Finance and Taxation with Big Data Application, Guangdong University of Finance & Economics, Guangzhou 510320, China

Correspondence should be addressed to Yanwen Wang; wangyanwen@gdufe.edu.cn

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In the new economic situation, enterprises formally enter the transition period of “think power differentiation and gap,” big data, artificial intelligence, digital empowerment, and other new digital economy has a positive effect on improving technical means and reducing operating costs, but the digital economy also forces enterprises to improve their strategies at a multiplier speed. The strategic decision of enterprises is to de-enterprise, from pursuing a single business operation benefit to winning competitive advantage by creating a platform ecosystem; the enterprise organization management mode is shifting from vertical management to horizontal collaborative management, and the organization structure is developing dynamically flat. This requires enterprises to pay attention to the role of data analysis in daily operations and management, promote the establishment of a data-driven corporate culture, make full use of digital technology, modularize production links or departments with similar functions or services, and promote the transformation of organizational structure. By unifying the output of products or services to the outside world; at the same time, improve the corporate performance model, shift from result-oriented to process-oriented assessment, and implement a personalized, authority, and accountability system. Shift from result-oriented to process-oriented assessment and implement a personalized incentive model that matches authority, responsibility, and benefits.

## 1. Introduction

In the new economic situation, knowledge and technology have become an important force to change the world, and the digital economy and the Internet have become a major trend [1]. However, most enterprises still choose the traditional management model in the process of business management, which leads to poor communication of information and data within the enterprise and affects the efficient development of the enterprise. In the current digital economy situation, Internet technology is constantly spreading [2]. The work that originally required a lot of manual input can now be done through a simple program; interlayer information transfer can be achieved on the corresponding information management platform; market research can also be achieved through computer development programs on a network platform, saving a lot

of time and effort while ensuring the accuracy of data transmission [3–5].

Corporate culture is a benign conduit for the combination of culture and economy, and the current scholarly view of corporate culture includes spiritual culture, group norms, and organizational ideas. Unlike corporate culture that focuses on the spiritual dimension, corporate managerial culture is more pragmatic and focused [6–8], accompanying management activities and permeating all aspects of corporate decision making, operational organization, motivational model, and leadership model.

This paper argues that management culture refers to the management ideology developed in the practice of strategic decisions, organizational models, and personnel management activities, as well as the accompanying institutional and organizational design, in order to achieve the strategic goals of the enterprise and maximize the efficiency of the

enterprise organization's resource allocation in the context of limited resources [9, 10]. He argues that the digital economy differs from the traditional economy in that its development is an open market from the very beginning, which makes it easier to form a virtuous circle of effective markets, fierce competition, and constant innovation. Only through high-quality scientific decision-making can we make full use of digital technology to improve production quality and efficiency, enhance the production capacity of enterprises, and meet the personalized and customized needs of consumers in the digital economy. On the basis of their own products, companies also need to make a comprehensive analysis and research judgments on the marketing of consumer demand preferences, product sales dynamics, competitors' market information and other massive and frequently changing data, so as to sign a more competitive pricing strategy and more attractive marketing plan, enhance the competitiveness of the enterprise market, and create value for consumers.

Second, corporate management culture needs more cooperation and open space. This is because the application of digital information technology enables companies to connect more market players and consumers and create value through open platforms, collaboration, and other organizational management models. Another important value of the digital economy is that users' personalized needs can be responded to quickly, and positive feedback is provided to the market supply capacity through demand satisfaction, thus promoting the operation of the production and consumption cycle. Therefore, in the digital economy, the most valuable companies are those that can openly collaborate to meet consumers' personalized needs and bring about a huge network effect, rather than traditional companies that concentrate a large amount of resources in one place.

Finally, the enterprise management culture should have the gene and power of continuous innovation. The in-depth application of technological practices such as big data and cloud computing has enabled the flow and reorganization of production factors to be carried out frequently at low cost and high efficiency, with new creations and ideas emerging and innovative products popping up all the time. In response to these innovative changes, Ref. [11] argued that the technological and economic paradigm shift brought about by innovation has led to new economic forms and economic structures. Reference [12] states that in the real world, companies manufacture products and sell them; in the online future, companies produce what consumers decide to buy, and small-volume, personalized production becomes a reality. This, together with the rapid development of digital technology itself, is driving the emergence of new products, new business models, and even new industries.

In today's era, the competition of enterprises is becoming increasingly fierce, and in the fierce market competition, enterprises must do a good job of management in order to stabilize their position. At present, the level of information technology in China is improving, and various advanced technologies are widely used in development and construction. Therefore, this paper analyzes the importance

of data analysis in enterprise management and proposes corresponding methods and measures to improve the quality level of data analysis work, hoping to be a reference and help for the future management of enterprises.

## 2. Related Work

The "digital economy" is a relative expression based on concepts such as the Internet and big data. In general, the basic characteristic of the "digital economy" is the focus on the use of knowledge and technology. This is mainly due to the influence of Internet technology. At the same time, in the digital economy. The huge economic benefits of knowledge and technological innovation are indispensable. Estimation. Therefore, giving full play to the advantages and competitiveness of knowledge and technology is the current way forward for all business management. In the Internet era, the "digital economy" is a virtual and physical form of economy. By constantly using various factors in the market, it is possible to break through traditional possibilities and achieve new breakthroughs in the process of economic development.

The digital economy has profoundly influenced economic and social development, reshaped business operation models, and driven the evolution of business management culture. Compared with agricultural and industrialized economies, the digital economy has unprecedented resource allocation, penetration integration and synergy capabilities, and promoting total factor productivity. The information flow mode of enterprises in the digital economy changes from one-way communication to network-based communication; enterprise value creation changes from tangible products to intangible data creation, and the business philosophy changes from stable profit acquisition to sustainable competitive winning [13]. Enterprise management culture must adapt to these new changes, promote the efficient flow of information, give full play to the value of employees, enhance market resilience, and improve the overall competitiveness of enterprises [14].

Supervision belongs to a very important role of data analysis in business management, the data analysis department in the enterprise data or information collection process, it will be able to more comprehensively know the development of the industry and the actual operation of the enterprise, so that after understanding the context and scope of the relevant data, the data analysis department can effectively assume the enterprise's various aspects of Supervision and management work. In view of the various problems in the development process of the enterprise, timely and effective measures can be taken to solve them, and some problems can also be prevented in time through the corresponding data analysis, and a corresponding problem prevention mechanism can be established, so as to effectively promote the improvement of the efficiency of the enterprise [15].

The difficulty of this work is high, so in order to complete this series of demanding, complex and difficult work, the analysts of the relevant departments need to have a certain amount of analysis of the basic conventional knowledge, but

also to have the corresponding analytical ability, theoretical knowledge, which, to some extent, requires the staff of the data analysis department to improve their quality level [16]. As the staff should master the method of data analysis and clarify the key steps before and after, on the other hand, they should also have the ability to summarize and analyze the data and certain writing skills. Thus, during the work of the data analysis department, it is inevitable that the relevant staff will be motivated to take the initiative to learn and continuously learn to improve their professional knowledge and skill level, so as to protect their own position in the enterprise, thus effectively improving the overall quality level of the staff [17].

China adheres to the socialist market economy system and has developed a way of economic development that is suitable for its national conditions. China mainly adopted the planned economy system in the early stage of economic construction, which consolidated the ideology of some management talents and formed administrative characteristics [18]. Especially in some regions, the government ideology was more serious, which made some enterprises maintain a strong administrative color in enterprise management. Management agencies overlapped and personnel was inefficient; after the reform and opening up, influenced by the international economic environment, a number of rigid and backward enterprises were gradually eliminated and began to reform their own enterprise management mode, and the domestic economic development potential was gradually enhanced. However, in the digital economy situation, many managers still resist the development of enterprise reform, rely too much on the traditional enterprise management model, and lack the acceptance of knowledge and technological innovation, which restricts the development of enterprise operation. At the same time, there is a problem of turnover of old and new personnel in enterprises [19]. Therefore, the lack of talent support in the transformation of the enterprise management model in the digital economy will become a key issue affecting the economic development and transformation of domestic enterprises.

### 3. Method

The meta-analysis method is a quantitative analysis method for reexamining previous studies, and according to the meta-analysis technique for sample. In this study, the following criteria were followed in the data selection process: (1) The data included in the study must be empirical studies using publicly available data, and the  $r$ -value of the relationship between CSR and corporate performance must be included in the study; (2) The data included in the study must include indicators related to CSR and corporate performance in the dependent and independent variables and in the moderating variables; (3) The data included in the study must be independent samples, and if there are cases where the samples in the study are the same, similar or intersecting, limited data with detailed sample size or research content will be included in the study; (4) For the definition of variables, the data selection process follows the following criteria studies;

(5) Data with vague variable definitions or variable definitions that are not within the scope of this study will be excluded if the data cannot be transformed and processed.

As shown in Figure 1, compared with the vertical organization model, the flat matrix organization model enables enterprises to effectively integrate internal and external resources based on objectives, provide quality products or services, respond to market changes in an agile manner, reduce trial and error costs, and resolve risks caused by uncertainty, which brings great benefits to enterprises.

The data coding for the meta-analysis consisted of two levels of content: sample information and effect values. Before formally coding the data, a coding manual was first developed to provide a reference for subsequent coding, and the coding manual was developed and its content was determined in communication with the supervisor to determine the accuracy of coding. When coding the sample information, we mainly included the direct information data in the sample data, and the coding catalog includes: basic information of the sample data, such as author, sample title, publication year, publication journal, data type, and sample size, sample data characteristics, such as country, industry and enterprise characteristics data, and target variables, such as enterprise performance and its measurement; in the coding of the main effect values, the correlation coefficients between enterprise environmental responsibility and performance were used. In the coding of the main effect values, the correlation coefficients between CSR and performance are used as the basic indicators, as well as other statistics that can be converted to correlation coefficients, such as  $t$ -values,  $F$ -values, and chi-square values.

At the same time, common data problems were also coded using the corresponding methods, specifically: first, if there were multiple correlation coefficients between the two in the same piece of data, according to the variables defined as the same subject and no indistinguishable, the study was included according to the mean value of all correlation coefficients. Second, for the same piece of data in the environmental responsibility or enterprise performance in the same piece of data, all of them are coded, screened, and processed in the data collation process. Third, for other statistics that can be transformed for correlation coefficient  $r$ , all are coded and transformed for effect values, and the specific transformation methods are described in the effect size transformation; fourth, for the missing values in the study, except for the relationship between CSR and corporate performance, the coding is blanked, and only the main effects are studied without the moderating effects.

In this paper, the effect value used in the study of the relationship between CSR and corporate performance in the main effect is Fisher's  $z$  value, which is converted from the correlation coefficient  $r$ . The conversion of the effect value consists of two parts: first, if the correlation coefficient  $r$  exists in the sample data, it is directly converted to Fisher's  $z$  value through the calculation formula; second, for other statistics such as  $t$  value,  $F$  value, chi-square value and regression coefficient in the sample data for the relationship between the two, it is transformed into Fisher's  $z$  value after the conversion of the correlation coefficient  $r$ . Table 1 shows



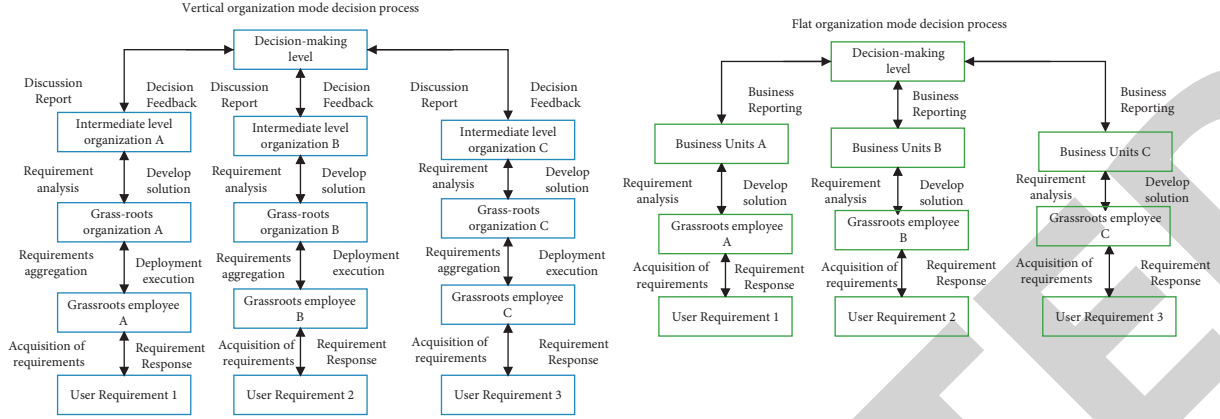


FIGURE 1: Differences in market demand response patterns across organizational forms.

TABLE 1: Effect value conversions.

Statistical value	Calculation method
$t$ -value	$r = \sqrt{t^2/t^2 + df}$ , where $df = N_e + N_e - 2$
$F$ -value	$r = \sqrt{F/F + df}$ , where $df = N_e + N_e - 1$
Cardinality value	$r = \sqrt{x^2/N_e + N_e}$
Regression coefficient	For the value of regression coefficient $\beta$ , if $-0.5 < \beta < 0.5$ , the following formula can be used for conversion $r = \beta * 0.98 + 0.05 (\beta \geq 0); r = \beta * 0.98 - 0.05 (\beta < 0)$

TABLE 2: Effect value conversion.

Statistical quantities	Calculation method
Corrected correlation coefficient	$r' = r / \sqrt{r_{xx} r_{yy}}$ , where $r_{xx}$ is the reliability of the independent variable, $r_{yy}$ is the reliability of the dependent variable
Fisher's $z$	$z = 0.5 \ln(1 + r/1 - r)$
Weighted average $z$	$\bar{z} = \sum (n_i - 3)z_i / \sum (n_i - 3)$ , where the sampling standard error is $SE_z = 1/\sqrt{(N - 3)}$ , weight $W_i = 1/SE = n - 3$
Final effect value	$\bar{r} = e^{2\bar{z}} - 1/e^{2\bar{z}} + 1$
Full sample sampling error	$SE_r = \sqrt{1/\sum W_i}$
Final effect value sig	$Sig. = \bar{SE}_z / SE_r$
95% confidence interval	$CI = \bar{z} \pm 1.96/SE_r$
Variance of effect values	$S_r^2 = \sum n_i (r_i - \bar{r})^2 / \sum n_i$ , where, $\bar{r} = \sum n_i r_i / \sum n_i$
Sampling error variance	$S_e^2 = \sum n_i (1 - \bar{r}_i)^2 / (n_i - 1) n_i / \sum n_i$
$Q$ -value	$Q = W_i ES_i^2 - W_i^2 ES_i^2 / \sum W_i$

the correlation coefficient  $r$  conversions for  $t$ -values,  $F$ -values, chi-squared values, and regression coefficients. Table 2 shows the calculation of other statistics in the meta-analysis process.

The tests for publication bias are mainly qualitative and quantitative. The funnel plot method is based on whether the graph is centrally symmetric, and symmetry indicates that

TABLE 3: Begg's test.

Adj.Kendall's score ( $P - Q$ )	Std. dev. of score	Number of studies	$z$	$P_r >  z $
148	133.98	55	1.12	0.278

TABLE 4: Egger's test.

Std.Eff	Coef.	Std.Err.	$t$	$P <  t $	[95%Conf.Interval]
slope	0.717055	0.562994	1.29	0.209	-0.412587 1.846657
biss	1.246767	1.358283	0.93	0.377	01.486578 3.960352

there is no publication bias between studies, while asymmetry indicates that there is publication bias between studies; the loss of safety coefficient is mainly observed whether the  $n$  value is greater than 0, and there is no publication bias if it is greater than 0, and vice versa.

In Tables 3 and 4, the results of the tests for publication bias of the sample data. The results in Table 3 show that the adjusted statistic  $z$  value is 1.12, which rejects the original hypothesis of publication bias; the results of the Egger's linear correlation test in Table 4 show that the corresponding  $P$  value of the bias variable is  $0.366 > 0.05$ .

The current situation of the development of business management is further analyzed using the hierarchical analysis method, and relevant countermeasures to promote the development of business management are proposed based on the analysis results.

The target layer  $G$  selects the most suitable online marketing development model for the enterprise; the criterion layer  $C$  consists of business management influencing factors, mainly including personalized demand  $C_1$ , logistics cycle  $C_2$ , brand awareness  $C_3$  and website content  $C_4$ ; the program layer  $P$  consists of different models of food online marketing programs, mainly including social online marketing model  $P_1$ , enterprise self-built website model  $P_2$ , and e-commerce platform model  $P_3$  (The constructed index hierarchy is shown in Figure 2).

On the basis of the index hierarchy, a two-by-two comparison of the elements present in the hierarchy is made to construct a judgment matrix. Using the judgment matrix,

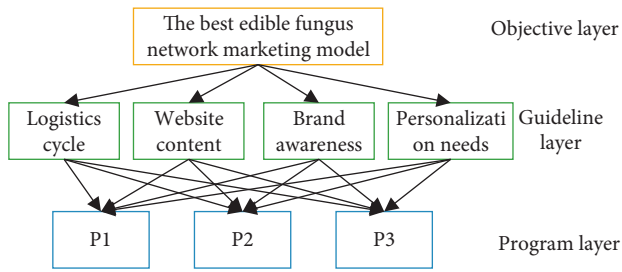


FIGURE 2: Hierarchical structure.

we calculate the weights corresponding to the indicators, and the indicators with higher weights are the main factors affecting the development of business management.

### 3.1. Pre-Production Link

**3.1.1. Low Level of Supervision.** However, at present, there are still problems of poor product quality and low market supervision in areas such as enterprise sales and production in China, and some vendors do not comply with the enterprise product management law and sell poor-quality products to users. Enterprise managers can not accurately identify the quality of products of good and bad quality, so that their own interests are damaged and reduce the motivation of users.

**3.1.2. Lack of Quality Inspectors and Quality Products.** The basis of enterprise research and production is quality products, and product quality directly affects the quality of finished products of the enterprise. Cultivating enterprises is a high-risk, high-investment work, most of the enterprise technology and equipment is difficult to support the cultivation of high-quality enterprise products. Coupled with the relatively small number of enterprise research institutes in China so far, there is a lack of technical personnel, backward equipment and insufficient funds, resulting in the industrial development of enterprises and product cultivation is relatively late.

### 3.2. The Production Chain

**3.2.1. Sloppy Management and Low Technical Level.** Most of the enterprises in China are in the primary stage of production, and manual operation is the main way of enterprises. Specifically, see Figures 3 and 4.

Analysis of Figures 3 and 4 shows that the statistics of users according to their education level show that most of the users engaged in enterprise production have a junior high school education, and the statistics of users according to their age show that most users are between 41 and 50 years old. In the family model, due to the limited education level, users have less knowledge about the enterprise, which leads to the constant stagnation of the enterprise industry development.

The methods of users' enterprises in the family mode come from daily accumulation and summary, and they

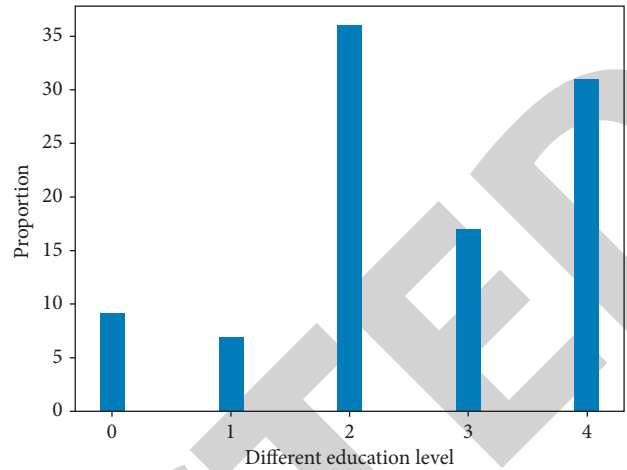


FIGURE 3: Classification of educational levels.

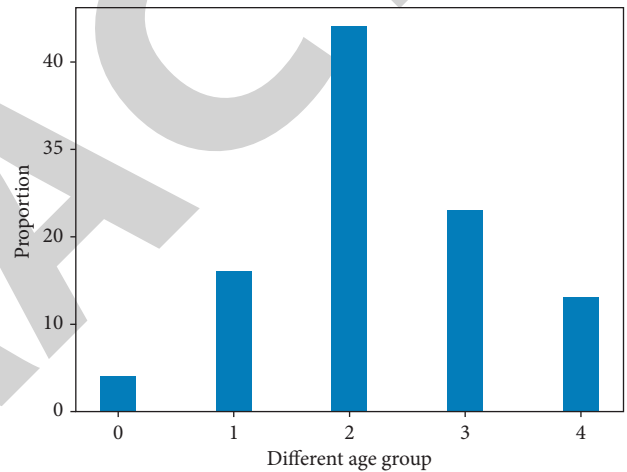


FIGURE 4: Age group division.

master less enterprise expertise, especially lacking knowledge of enterprise product purchase, which makes it easy to buy inferior products. At present, the level of regulation of China's enterprise market is low, and there are fewer purchase channels, using inferior products to cultivate the enterprise, the yield and quality are poor, which adversely affects the user income.

## 4. Case Study

The development status of a city's business management is used as an example to analyze the current situation of China's enterprise network marketing development. Factory enterprises, bases, and individual households are the main forms of enterprise production in a city, mainly distributed in several districts and counties. Sales and production of enterprises of different varieties vary, but overall production tends to be stable.

In recent years, enterprise factory has been developed in a city. Compared with the traditional way, the economic efficiency and production level of enterprise factories are higher, which facilitates the application of new

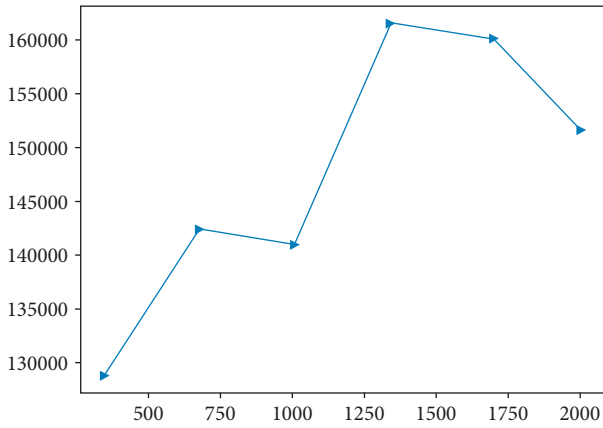


FIGURE 5: Enterprise production in a city from 2017 to 2022.

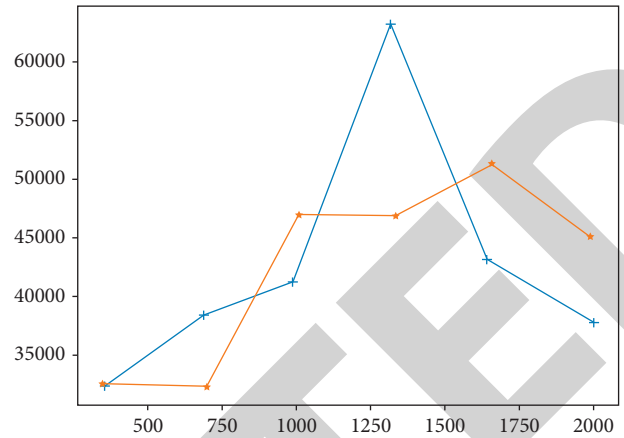


FIGURE 7: Production of a city from 2017 to 2022.

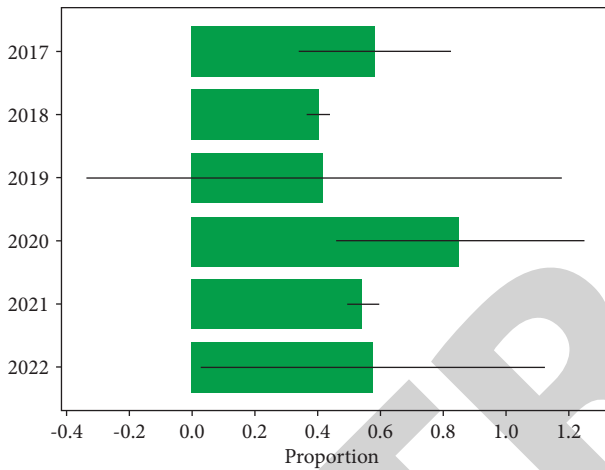


FIGURE 6: Proportion of the production of edible fungi in the country from 2017 to 2022.

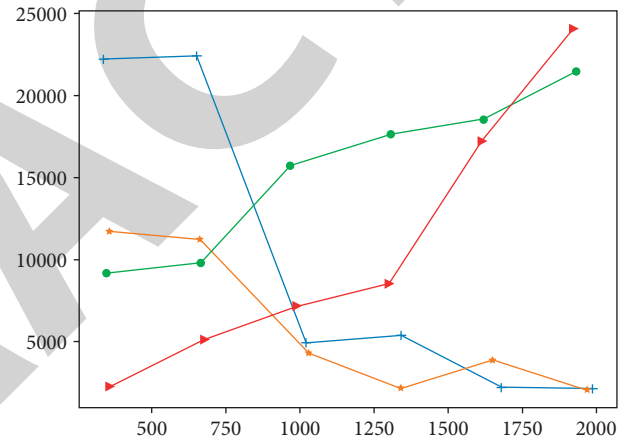


FIGURE 8: Enterprise production in a city from 2017 to 2022.

technology as well as the promotion of new varieties and keeps the supply market stable, which is an inevitable trend for the development of enterprise industry in the country.

As of 2021, the annual output of enterprises in a city is up to 16.2 million tons, and the varieties of enterprises are up to more than 20. The output of a city enterprise is shown in Figure 5, and the proportion of the output of enterprises in the country is shown in Figure 6.

Analysis of the data in Figures 5 and 6 shows that the enterprise production in a city from 2017 to 2020 has been rising, but from 2020 to 2022 there is a decreasing trend; compared with the enterprise production in 2017, the enterprise production in 2022 increased by about 20%, in contrast, the enterprise production in a city in the national enterprise production in the proportion of the decreasing trend.

The number of enterprise varieties in a city in 2022 is the same as the number of enterprise varieties in 2021, and the production is about 15.28 million tons, which accounts for 95.12% of the total production of enterprises in a city, which is the highest and most common sales volume in a city

market. According to the production of a city from 2017 to 2022, the enterprise varieties can be divided into three categories, the first category of enterprises with the production of annual growth and production of a larger number of characteristics. The proportion of production in the total output of enterprises in the city is large, and the output fluctuates from around 30,000 tons to 50,000 tons on average every year, and the output of a city from 2017 to 2022 is shown in Figure 7.

As can be seen from Figure 7, the production has the highest values in 2020 and 2021, and the production has been increasing steadily in other years. Figure 8 shows the production of different types of enterprises in a city from 2017 to 2022.

The second category of enterprises refers to the varieties with good industrial production technology and rapid growth in production in the last two years. Analysis of the data in Figure 8 shows that compared with the output in 2017, the output in 2022 has doubled. The third type of enterprises, showing the characteristics of decreasing production year by year, had the most production in 2017 and 2018 in Zhonghe, but the production gradually became less after 2019.

## 5. Conclusion

The core of competition among enterprises has changed from product function competition to user value competition. On the traditional basis of tangible product competition, supply chain competition and production and operation efficiency competition, more comprehensive and three-dimensional human resource competition, and management model competition and corporate culture competition have been derived. In such a brutal market competition environment, enterprises should not only be satisfied with the traditional product competition strategies such as cost leadership, differentiation strategy, and target concentration strategy, but also need to create and improve the corporate management culture and management model that adapt to the characteristics of the digital economy.

## Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

## Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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