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Impact of Energy Conservation and Emission Reduction on E-Commerce Development

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Abstract:

Introduction: Enterprise performance evaluation can guide the behavior of enterprises, but the existing enterprise performance evaluation methods generally have defects such as focusing on economic benefits, ignoring environmental benefits, focusing on internal benefits of enterprises, and ignoring social benefits, resulting in enterprise operators simply pursuing internal economic benefits of enterprises while ignoring social benefits and environmental protection and energy conservation.

Objectives: This paper expounds the impact of e-commerce on low-carbon economy in the operation process through the theoretical analysis of low-carbon economy, circular economy, network economy and e-commerce.

Methods: Through the analysis of e-commerce operation process, including many empirical studies on energy conservation and consumption saving and low-carbon emission reduction of e-commerce, this paper analyzes the promotion effect of e-commerce on low-carbon economy. In addition, this paper also analyzes the negative impact of e-commerce on low-carbon economy. This paper analyzes the waste of resources in the packaging process of e-commerce in the field of logistics, and puts forward the method of recycling.

Results: The research results show that good ecological development can promote the development of e-commerce and make it more in line with the needs of low-carbon economy.

Conclusions: In view of the problems in the development of low-carbon packaging model for e-commerce websites, and in view of the huge waste of its packaging links, this paper analyzes the low-carbon management model of foreign e-commerce packaging, and puts forward the reference significance of foreign models for our e-commerce enterprises to develop low-carbon packaging model

Keywords: low carbon economy, e-commerce, recycling, sustainable development

INTRODUCTION

Enterprise performance evaluation can guide the behavior of enterprises, but the existing enterprise performance evaluation methods generally have defects such as focusing on economic benefits, ignoring environmental benefits, focusing on internal benefits of enterprises, and ignoring social benefits, resulting in enterprise operators simply pursuing internal economic benefits of enterprises while ignoring social benefits and environmental protection and energy conservation1-2. Therefore, to evaluate enterprise performance in the context of developing low-carbon economy, we should not only attach importance to the internal benefits of enterprises, but also truly, objectively and impartially evaluate the performance of enterprises in social contributions, resource conservation, environmental protection and other aspects, so as to correctly guide enterprise behavior3. Therefore, how to evaluate enterprise performance comprehensively, scientifically and reasonably in the face of circular economy has aroused people's concern4-6. The significance of this study is that low carbon economy has a very important practical significance for the sustainable development of the world economy7. To a certain extent, low carbon economy has a very important practical significance for the improvement of the overall economic development speed of all countries in the world in the future development process.

OBJECTIVES

This paper expounds the impact of e-commerce on low-carbon economy in the operation process through the theoretical analysis of low-carbon economy, circular economy, network economy and e-commerce.

METHODS

DEVELOPMENT STATUS OF B2C E-COMMERCE ENTERPRISES

In recent years, due to the rapid development of China's economy, the information technology and information revolution have created a favorable economic and industrial environment for the development of China's online shopping market. The enthusiasm of major members of the whole market to participate in online consumption has been growing, network security is getting better and better, market confidence is recovering rapidly, and the potential for online shopping development is huge. According to the

analysis of relevant market data, the economic scale of Internet users in China has reached 100 million in 2019, more than 400 million in 2021, reaching 457 million. In addition, in the new century, China has paid more attention to it, issued a series of preferential policies, and constantly improved computer technology, thus increasing the number of consumers surfing the Internet and their desire to buy8-9.

Although the total number of Internet users in China has increased year by year, the growth between the number of online shopping and the total number of Internet users is not synchronized. As China's relevant laws, regulations and policy system on online shopping are not perfect, and the online shopping market is facing an increasingly complex situation, the application of entertainment, information, etc. on the Internet has increased, and the proportion of business applications has begun to decline. China's population base and netizen base are relatively large, and the market order is not perfect. Therefore, there are unfavorable factors that lack a harmonious and sound environment. According to the statistics of the Internet Network Information Center, by the end of the year, the number of Internet users had increased to more than 100 million, and the number of online shopping users had increased by. However, the popularity rate of online shopping, a new form of shopping in China, is still very low compared with that in foreign countries, accounting for 26%. This figure is far less than that of Switzerland, France, the United Kingdom and other developed countries. Although the statistics are not precise enough and too general, on the whole, the growth trend of Internet users is not synchronized with that of online shopping. Therefore, for all the above reasons, the relevant laws have been gradually implemented to create a more harmonious and safe online shopping system.

THE RELATIONSHIP BETWEEN B2C E-COMMERCE ENTERPRISE PERFORMANCE MODEL AND LOW CARBON

Performance management is a management activity based on the enterprise strategy. It is a management method that encourages employees to improve their performance and finally realizes the organizational strategy and objectives by establishing the enterprise strategy, decomposing the objectives, evaluating the performance, and applying the results to the regular management activities of the enterprise. The research on the world's top enterprises shows that their performance management has the same several elements, namely: performance management objectives, performance management methods, performance management evaluation mechanism and performance management performance application.

(1) Enterprise performance management objectives and low carbon. Peter Drucker, the master of management science, put forward in his book "Management Practice" that the formulation of project standards must follow the principles. S-goals must be specific, M-goals must be measurable, A-goals must be achievable, R-goals must be relevant to work, and T-goals must have clear deadlines. As a member of the market economy, the precondition for enterprises to compete for profits is to follow the market rules and act according to them.

(2) Enterprise performance management mode and low carbon. The traditional enterprise performance management method follows the basic principle of "cost benefit" analysis, in which "cost" mainly includes the cost of talents, financial resources, information, technology, etc., and "income" is the final calculated total value minus the initial cost expenditure. Generally, the principle of enterprise production follows "cost minimization and income maximization". The performance management method formed on this basis is also based on the above principles to measure the performance of various departments in the enterprise. In the environment of low carbon economy, the paradigm of enterprise performance management must undergo a qualitative change, from the "high carbon extensive approach" to the "low carbon intensive approach". The focus of attention has also shifted from the traditional economic cost and economic benefits to the consideration of economic costs and benefits, as well as environmental costs and benefits10. That is, environmental factors must also be listed as one of the evaluation indicators of enterprise performance management.

(3) Enterprise performance evaluation system and low carbon. For modern enterprises, the significance of performance evaluation is not only reflected in the impact on the productivity and competitiveness of the organization, but also helps enterprises to better carry out personnel decision-making and personnel management. In the era of low carbon economy, the performance evaluation of enterprises should not only start from the material basis of capital and technology, but also take into account the interests of the evaluators and the assessees in the performance evaluation system, take into account the ecological environment and other factors, and adopt scientific performance evaluation methods.

(4) Enterprise performance application and low carbon. At present, the purpose of performance management in most enterprises is to distribute performance pay. In reality, the application of enterprise performance performance includes the following six aspects: salary adjustment, performance pay distribution, hierarchical promotion and position adjustment, education and training, activation and precipitation, and guidance for employee career development. In the era of low-carbon economy, the application of enterprise performance must be linked with economic costs, environmental costs and other factors, formulate a plan for the

future development of the enterprise, consider the green growth mode, build a low-carbon human resource management system, and lay the foundation for scientific employment decision-making, distribution, reward and punishment mechanisms and other management activities through the review and evaluation of performance.

ANALYSIS ON LOW CARBON PERFORMANCE EVALUATION MODEL OF B2C E-COMMERCE ENTERPRISES

This paper believes that not all links have the same contribution to the performance of the enterprise's low-carbon management. In many links, Li Ran has carried out relevant tests on low-carbon management, but the only factors affecting the overall performance are product packaging and management measures. By controlling these two factors, good low-carbon management performance can be achieved. In this paper, e-commerce enterprises adopting the traditional management mode are designed as the control group, and enterprises adopting the low-carbon management mode are designed as the experimental group. Among them, the focus is on the enterprise performance of different management modes in the production link, transaction link, logistics link and management link. See Table 1.

In view of the theoretical model proposed by this topic, this paper investigates and analyzes the performance of various processes of e-commerce enterprises through questionnaires, and focuses on investigating the performance growth of e-commerce enterprises that adopt low-carbon management and e-commerce enterprises that adopt traditional management methods, using the profit per unit of transaction volume to eliminate the impact of e-commerce enterprise size on performance. According to the purpose of this research, the following assumptions are proposed:

(1) There is a significant correlation between product packaging factors of e-commerce enterprises and low carbon performance of enterprises

(2) There is a significant correlation between the low-carbon management system of e-commerce enterprises and their low-carbon performance

RESULTS

CORRELATION ANALYSIS BETWEEN MAIN FACTORS AND LOW CARBON PERFORMANCE OF ENTERPRISES

The staff of three enterprises, Jingdong Mall, Dangdang and Excellence Network, were investigated by questionnaire and asked to evaluate the content of the above indicator system according to the five level quantitative indicators 1-5. A total of 160 questionnaires were distributed. 150 valid questionnaires were recovered, with an effective recovery rate of 93.75.

In the process of statistical data mining, in order to avoid the interference of variable statistical differences in this analysis, the first thing to do is standardization. In the process of standardization, the Z standardization method in SPSS is used for processing. Convert real data into standardized data. And the standardized dimensionless data is used for data statistics and analysis, thereby eliminating the impact of the difference in the statistical order of magnitude between the data on the system statistics.

The effect of low-carbon management of e-commerce enterprises is mainly affected by two aspects, one is the packaging situation in the logistics link, the other is the management measures and systems of the enterprise's low break management. First of all, from the perspective of packaging, e-commerce enterprises generate a lot of packaging costs in the logistics link. How to reduce these packaging costs and effectively recycle packaging waste is the key for enterprises to implement low-carbon effects. In addition, the management system of enterprises and the emphasis on low carbon also directly affect the performance of enterprises in low carbon economy.

Extracting the key factors that affect the low-carbon economic effect of e-commerce enterprises, then whether the relationship between these two key factors and enterprise performance is relevant has become a key issue for further research. To solve this problem, this paper uses the correlation analysis in SPSS to obtain statistical conclusions as shown in Table 2.

It can be seen from the above statistical analysis that the correlation level between packaging cost and company performance is 0.000, which is obviously lower than the requirement of 0.005, indicating that there is a significant correlation between the two. And there is a negative correlation between them. Similarly, it can be seen that there is a significant correlation between management system and corporate performance, and the two are positively correlated.

Regression analysis can be used to quantitatively express the quantitative relationship between enterprise performance and low carbon main factors. Through regression analysis of the relationship between main factor variables and company performance, the data obtained are shown in Table 3.

Through regression analysis, it can be seen that in this regression model, the significance level of variable T in this regression model is 0.000, which is less than 0.05, indicating that these variables can exist in the model as explanatory variables. It can be seen from the F index that the regression can explain 84.56% of the sample characteristics of the overall sample, indicating that the regression effect is good.

Thus, the company's performance formula is: low carbon performance=0.43 5 × Management system-0.225 × Packaging factor

It can be seen from this conclusion that the company's low-carbon performance has a significant relationship with the company's management system and the packaging situation in the logistics link, among which there is a negative correlation between the packaging factors and the company's low-carbon performance, and there is a significant positive correlation between the management system and the company's low-carbon performance.

The regression conclusion confirms that, as an e-commerce company, it should pay special attention to the internal management and packaging management of the company when implementing the strategy of low-carbon development. Among them, in terms of management system, the management system determines the management method and operation process of a company. A good management system will effectively promote the rational allocation of resources of the company, thereby improving the company's performance. Among them, in low-carbon performance, the guarantee cost factor in logistics is also the key factor affecting the low-carbon performance of enterprises. We should establish and improve relevant measures on packaging management, and effectively implement the management objectives of low-carbon management.

COUNTERMEASURES AND SUGGESTIONS FOR IMPROVING THE LOW CARBON PERFORMANCE OF B2C E-COMMERCE ENTERPRISES

At present, there are regional differences in the development of online shopping market in China. The penetration rate of online shopping market in the east and west of China is inconsistent. In the economically developed eastern region, people's living standards are constantly improving, online shopping is becoming more and more popular and fashionable, and the scale of online shopping is expanding year by year. With the deepening of the concept of online shopping, the network penetration will naturally be high. According to relevant market analysis and statistics, the penetration rate of Internet users in economically developed eastern cities such as Beijing, Guangzhou and Shanghai has reached more than 60. In the cities of the Yangtze River Delta, the Pearl River Delta and the Bohai Rim Economic Zone, the penetration rate of Internet users is basically above 40%. In central China and the Bohai Sea region, the penetration rate of online shopping in Beijing has reached 51.9%, and that in Tianjin has reached 31.8%. Therefore, the online shopping market in China is highly concentrated in the regions centered on several big cities. As a result, online shopping companies in big cities basically have their own logistics delivery teams, such as Excellence Amazon and JD, and shoppers can see the whole delivery process through the logistics number on the website. See Table 4.

Compared with online shopping enterprises that have their own logistics distribution network systems, some enterprises do not have independent logistics distribution capabilities. On the one hand, there are regional differences in the development of online shopping market in China. Although, the penetration rate of online shopping market in eastern and western China is relatively high. However, in small and medium-sized cities and remote areas in the central and western regions, including Shaanxi, Sichuan and other places, as well as some old industrial areas in Northeast China except for the regional centers. Due to the limited urban development capacity, people's consumption capacity is not high, and the popularity of the electronic network is not enough, people are affected by the consumption capacity and consumption concept, leading to the insufficient popularity of electronic online shopping. On the whole, the penetration rate of online shopping is only about 20%. In these areas, it is impossible to implement the low-carbon mode of packaging recycling dominated by logistics built by B2C online shopping enterprises.

Although, in these areas, online shopping enterprises do not have the conditions to build a low-carbon model of logistics led packaging recycling. However, we can use the logistics distribution system of local cities, which requires the involvement of third-party logistics enterprises.

To establish a low-carbon packaging recycling model dominated by logistics enterprises, it is necessary to establish a third-party organization management reverse system, which will be a complex network management system for independent logistics companies. In this reverse online shopping customer logistics system, customers return cartons to the mall through reverse logistics. If the number of online shopping companies served by logistics companies continues to increase, it means that the reverse system will become more and more complex. At this time, it is necessary to investigate and analyze the cooperation efficiency and effect of express companies. Each express company has its own different positioning, which also needs to be

understood. It is also necessary to promote express companies to change their operation mode into a low-carbon mode, so as to reduce packaging costs and reduce environmental pollution. These measures are very necessary for packaging recycling.

DISCUSSION

This paper proposes a new low-carbon development model of e-commerce based on system management and packaging management by studying B2C e-commerce enterprise low-carbon performance model. And the conclusion is as follows: in view of the problems in the development of low-carbon packaging model for e-commerce websites, and in view of the huge waste of its packaging links, this paper analyzes the low-carbon management model of foreign e-commerce packaging, and puts forward the reference significance of foreign models for our e-commerce enterprises to develop low-carbon packaging model. From the empirical analysis conclusion of this paper, we can see that among its many influencing factors, the company's institutional factors and product packaging factors are the key factors affecting the low carbon performance of other B2C business websites. Among them, packaging is a key part of logistics, a key step and link for enterprises to carry out low-carbon development, and a key improvement link for enterprises' low-carbon management. As a management factor, system is a guarantee mechanism for low-carbon development.

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