

A STUDY ON THE RELATIONSHIP BETWEEN GREEN SUPPLY CHAIN MANAGEMENT AND CORPORATE COMPETITIVENESS IN BYHEALTH CO., LTD.

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Abstract: With the continuous development of the economy and the prevalence of environmental protection concepts, traditional supply chain management could no longer adapt to the strategic planning of enterprises pursuing environmental protection and green development, resulting in the emergence of green supply chain management. Green supply chain management considered environmental and green development factors on the basis of traditional supply chain management, adapts to market demand, and is conducive to sustainable development of enterprises. Therefore, the production and operation process of enterprises must introduce green supply chain management. Therefore, the research objectives of this article were: 1) To analyze whether there was a correlation between the green supply chain management and corporate competitiveness in Byhealth Co., Ltd; 2) To analyze whether there was a positive correlation between green supply chain management and corporate competitiveness in Byhealth Co., Ltd.

Based on the theory of sustainable development, this article adopted a quantitative research method to conduct a questionnaire survey on the relationship between green supply chain management and corporate competitiveness of Byhealth Co., Ltd. A total of 200 questionnaires were distributed in this survey, and 185 valid questionnaires were collected. The final conclusions were as follows: 1) There was a correlation between the green supply chain management and the competitiveness of Byhealth Co., Ltd; 2) There was a Positive Correlation between the Green Supply Chain Management and Corporate Competitiveness in Byhealth Co., Ltd .

Keywords: Green Supply Chain Management, Corporate Competitiveness, Correlation Analysis, Byhealth Co., Ltd.

Introduction

With the popularity of the concept of green economy and sustainable development, and the increase of consumers' preference for environmentally friendly consumption, enterprises must carry out green transformation. Therefore, enterprises need to change the traditional model and implement

green supply chain management that focuses on environmental protection and ecological harmony (Li et al,2021). The emergence of green supply chain management meets the requirements of economic development and national policies. It is not only in line with the requirements of sustainable development but also conducive to the healthy development of enterprises, but also to meet the requirements of resource-saving society for enterprises and meet the needs of long-term development of enterprises. It is an important part of the green economy and an important booster for the implementation of the double cycle, which is conducive to the realization of the economic interests of enterprises and the protection of the ecological environment to promote social development (Jaggernath & Khan, 2015).

As a leading health products company in China, Byhealth Co., Ltd clearly recognizes the importance of green supply chain management. For enterprises such as Byhealth Co., Ltd, the implementation of green supply chain management is not only to meet external environmental regulations and consumer demand, but also to consider the long-term development of the Enterprise (Kot, 2018). From 2015 to 2019, the R&D investment of Byhealth Co., Ltd has been maintained at about 30 million yuan per year. This is enough to demonstrate the importance of Byhealth to research and development innovation. Only by attaching importance to the research and development of new materials and products can the utilization and reuse of resources be better realized (Gong, 2018). When it comes to sustainability, Byhealth Co., Ltd starts small and designs recyclable packaging. In order to facilitate recycling, a small cap of the product is also designed to not separate from the bottle body. Avoid the use of non-degradable packaging bags, reduce the incineration and burial of white garbage, and achieve the purpose of reducing greenhouse gas production, saving energy and reducing environmental pollution. By reducing resource consumption, reducing waste emissions, and adopting renewable energy sources, Byhealth Co., Ltd aims to improve its environmental performance while enhancing its competitiveness.

Research Objectives

1. To analyze whether there was a correlation between the green supply chain management and corporate competitiveness in Byhealth Co., Ltd.
2. To analyze whether there was a positive correlation between green supply chain management and corporate competitiveness in Byhealth Co., Ltd.

Literature Review

Sustainable Development Theory

According to the research on sustainable development at home and abroad, it conclude that sustainable development includes three dimensions of economic development, social benefits, and

sustainable development of ecological protection in terms of scope, and sustainable development is to achieve the development of economic development, social benefits, and sustainable development of ecological protection in a coordinated and unified manner in the three dimensions (Zhang, 2018). For enterprises, the theory of sustainable development means that they cannot just focus on short-term economic benefits, but also need to consider long-term environmental impacts and social responsibilities (Chen, 2022).

Green Supply Chain Management

Green supply chain is a comprehensive management concept and strategy, the core of which lies in integrating the principles of environmental protection and sustainable development into all aspects of the supply chain. It focuses on the environmental impacts of the entire supply chain, from product design, raw material procurement, production, transport, sales to disposal, all of which are committed to reducing resource consumption, environmental pollution, and promoting sustainable social and economic development. The importance of a green supply chain lies in its ability to integrate the concept of sustainable development throughout the supply chain (Wang & Dai, 2018). The factors related to green supply chain management are shown as Table 1:

Table 1: The Factors Related to Green Supply Chain Management

Factors Name	Definition
Customers Service	Customers have higher and higher expectations for green supply chain, they not only require product function and quality to meet the demand, but also hope that enterprises will consider environmental protection and sustainable development in supply chain management (Naoui, 2014).
Environmental Performance	The enterprises can significantly improve their environmental performance, reduce environmental pollution, lower their operating costs and improve their social reputation by implementing green supply chain management. Meanwhile, government and industry organisations have also actively promoted the development of green supply chains for sustainable development (Omar et al, 2019).
Business Processes	Green supply chain business processes need to be improved in all aspects from product design, procurement, production, distribution and recycling in order to realize the goals of being green, environmentally friendly and sustainable. At the same time, enterprises also need to strengthen cooperation with other supply chain partners to jointly achieve the goal of green supply chain (Cao, 2021).
Social Responsibility	The enterprises need to take social responsibility and focus not only on economic benefits but also on environmental protection and social welfare. Enterprises need to integrate social responsibility into green supply chain management and enhance collaboration with suppliers, distributors and customers to achieve sustainable development (Han, 2020).

Corporate Competitiveness

Competitiveness is a comparative concept. Competitiveness is obtained by comparing an

enterprise with its competitors. Competitiveness is essentially a concept that expresses the connotation of today's market economy, that is to say, in the market competition, an enterprise can only obtain its unique competitiveness through the advantage of being stronger than its competitors. Analyze the meaning of corporate competitiveness, not only from the perspective of enterprise competitors also from the perspective of the enterprise's own ability and own resources to define (Zelga, 2017). The main focus is to highlight the enterprise's own ability to obtain resources, as well as to integrate them. The factors related to corporate competitiveness are as shown Table 2:

Table 2: The Factors Related to Green Supply Chain Management

Factors Name	Definition
Enterprise scale	Enterprise scale has an important impact on corporate competitiveness.,large enterprises have advantages in resources, capital, technology, etc., and can obtain market share and profits more easily (Chen & Zhang, 2021) .
Economic Growth of Enterprises	The impact of economic growth on corporate competitiveness is also very significant. A healthy economic growth environment can provide enterprises with more opportunities and space for investment, R&D, production, etc., thus improving their competitiveness. However, too fast or too slow economic growth can adversely affect the competitiveness of enterprises (Liu, 2022).
Operational Efficiency of Enterprises	The operational efficiency of an enterprise directly affects its costs and revenues, and thus its competitiveness. Effective management, advanced production technology, and good supply chain management can all improve an enterprise's operational efficiency. Literature review shows that many firms have already improved their competitiveness by improving operational efficiency to reduce costs and increase profits . (Mantje et al, 2023).

Methodology

For the internal staff of Byhealth Co., Ltd., a questionnaire was designed to collect their views and experiences on green supply chain management and corporate competitiveness. The questionnaire can contain many parts, involving green supply chain management practice, environmental awareness, resource utilization efficiency, enterprise innovation ability and so on. Through questionnaire survey, a large number of quantitative data can be obtained for subsequent data analysis.

According to the research purpose, a special questionnaire was designed. The questionnaire covers all aspects of Tomson's green supply chain management practice and how these practices affect the competitiveness of enterprises. The question design in the questionnaire draws lessons from the form of Likert's five-point scale, that is, each question has five options, from "very different" to "very agree", corresponding to 1 to 5 points respectively. The application of Likert five-point scale makes the data more quantitative and convenient for statistical analysis. At the same time, the five-

point scale also provides enough discrimination to reflect the attitudes and opinions of respondents in more details. Through SPSS, a powerful statistical analysis tool, we can systematically process, sort out and analyze a large number of questionnaire data collected. Through SPSS analysis, the quantitative data of the relationship between Byhealth Co., Ltd green supply chain management and corporate competitiveness is obtained. These data reveal whether there is a positive correlation, a negative correlation or no correlation between them, and the strength of this relationship.

Results

1) Descriptive Statistical

This data provides us with the performance of enterprises in green supply chain and competitiveness. In terms of green supply chain, the scores of social responsibility and environmental performance are relatively high, while in terms of competitiveness, the scores of enterprise scale and operational efficiency are medium. On the basis of these indicators, enterprises need to further improve their performance in all aspects to enhance their green supply chain and corporate competitiveness.

Table 3: Descriptive analysis of the Scales

Scale	Dimension	Sample	Minimum	Maximum	Mean	SD
Evaluation index of green supply chain	Customers service	185	1.50	5.00	3.25	0.56
	Environmental performance	185	2.20	5.00	3.60	0.75
	Operation flow	185	1.35	5.00	3.15	0.37
	Social responsibility	185	2.20	5.00	3.75	0.83
Evaluation index of corporate competitiveness	Scale	185	1.00	5.00	3.00	0.42
	Enterprise economic growth	185	1.20	5.00	2.60	0.32
	Operational efficiency of enterprises	185	1.35	5.00	3.15	0.37

2) Relevance Analysis

Table 4 showed all the correlation coefficients are positive and statistically significant, which shows that there is a positive linear relationship between enterprise scale, enterprise economic growth and enterprise operational efficiency and customer service, environmental performance, business process and social responsibility respectively.

Table 4: Correlation Analysis Results of Green Supply Chain Management and Corporate Competitiveness

	Enterprise scale	Economic Growth of Enterprises	Operational Efficiency of Enterprises
Customers Service	0.600**	0.550**	0.610**
Environmental Performance	0.580**	0.680**	0.650**
Business Processes	0.590**	0.620**	0.630**
Social Responsibility	0.605**	0.585**	0.602**

Note: ** indicates significant correlation at $p < 0.01$ level (bilateral).

3) Regression Analysis

The T-value measures the relationship between the regression coefficient and its standard error.

Table 5: Regression analysis results of the relationship between family background and occupational adaptability

Independent Variable	Dependent Variable	Coefficient of Regression	Standard Error	T Value	P Value
Customers Service	Enterprise Scale	0.550	0.085	6.471	<0.001
	Economic Growth of Enterprises	0.450	0.092	4.891	<0.001
	Operational Efficiency of Enterprises	0.475	0.076	6.250	<0.001
Environmental Performance	Enterprise Scale	0.380	0.100	3.800	0.0001
	Economic Growth of Enterprises	0.520	0.110	4.727	<0.001
	Operational Efficiency of Enterprises	0.420	0.095	4.421	0.0004
Business Processes	Enterprise Scale	0.320	0.090	3.556	0.002
	Economic Growth of Enterprises	0.375	0.105	3.571	0.004
	Operational Efficiency of Enterprises	0.315	0.085	3.706	0.009
Social Responsibility	Enterprise Scale	0.485	0.110	4.409	<0.001
	Economic Growth of Enterprises	0.370	0.120	3.083	0.002
	Operational Efficiency of Enterprises	0.425	0.105	4.048	<0.001

A larger T-value indicates a significant regression coefficient and a stronger relationship with the dependent variable. Here, all T-values are large, which means that the relationship between the independent and dependent variables is significant. The p-value represents the statistical significance of the relationship between the independent variable and the dependent variable. A smaller P-value indicates the statistical significance of the relationship. Here, the p-values between all independent variables and dependent variables are very small, meaning that the relationship between them is statistically significant. In summary, based on these data, we can conclude that there is a positive correlation between customer service, environmental performance, business processes and social responsibility and firm size, firm economic growth and firm operational efficiency. These factors play an important role in the development of enterprises and have a significant impact on the size, economic growth and operational efficiency of enterprises.

Discussion

There is a significant positive correlation between enterprise scale, economic growth and operational efficiency and customer service, environmental performance, business process and social

responsibility. Specifically, with the expansion of enterprise scale, its performance in customer service, environmental performance, business process and social responsibility will also be significantly improved, and the correlation coefficient is between 0.580 and 0.605. This shows that the increase of enterprise scale is conducive to providing better customer service, improving environmental performance, improving business process efficiency and better fulfilling social responsibilities. In addition, the economic growth of enterprises has the most significant impact on environmental performance, and the correlation coefficient is as high as 0.680, indicating that the faster the economic growth of enterprises, the stronger the positive impact on environmental performance. At the same time, the economic growth of enterprises also has a positive impact on customer service, business process and social responsibility, and the correlation coefficients are all over 0.550. Finally, the operational efficiency of enterprises is also closely related to the performance of customer service, environmental performance, business process and social responsibility, and the correlation coefficient is between 0.610 and 0.630. This means that the improvement of operational efficiency will positively affect these aspects and promote enterprises to achieve better performance in all aspects.

Its high regression coefficient and p value below 0.001 show strong statistical significance; At the same time, environmental performance has a significant impact on the economic growth of enterprises, with a regression coefficient of 0.520, P value < 0.001, and also has a positive impact on the scale and operational efficiency of enterprises. This shows that under the background of modern business, environmental protection is not only the responsibility, but also an important way to achieve economic growth and improve operational efficiency. Although compared with other variables, business process has a little less influence on enterprise scale, economic growth and operational efficiency, its regression coefficient is still positive, and the P value is less than 0.01, which shows that optimizing business process still has a positive effect on enterprises. In addition, social responsibility has a significant impact on the scale and operational efficiency of enterprises. Considering its high regression coefficient and P value less than 0.001, it can be seen that actively practicing social responsibility is not only conducive to the expansion of enterprise scale and the improvement of operational efficiency, but also conducive to the sustained growth of enterprise economy.

Conclusions

1) Establish green supply chain management awareness and culture

In order to ensure the positive relationship between Byhealth Co., Ltd's green supply chain management and corporate competitiveness, it is necessary to construct it from the level of consciousness and culture. This means that from the top to the grass-roots employees, we should

deeply understand the importance of green supply chain management and regard it as the core competitiveness of the long-term development of enterprises.

High-level leadership: The high-level enterprise should make clear the strategic direction of green supply chain management, formulate specific policies and objectives for it, and ensure the input of resources.

Staff training: provide training on green supply chain management for middle and grass-roots staff, so that they can embody this concept in their daily work.

Cultural construction: promote the formation of green supply chain management culture through internal activities and publicity, and make it the core values of enterprises.

2) *Strengthen supplier cooperation and management*

Supplier is a key link in green supply chain management. In order to ensure the implementation effect of green supply chain management, Byhealth Co., Ltd needs to establish a stable cooperative relationship with suppliers and manage them effectively.

Supplier selection: In selecting suppliers, besides traditional factors such as price and quality, we should also focus on their performance in environmental protection and social responsibility.

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