Scholar Publishing Group
Academic Journal of Agricultural Sciences
https://doi.org/10.38007/AJAS.2023.040108
ISSN 2789-8415 Vol. 4, Issue 1: 97-107

Influencing Factors of Soybean E-commerce Management from the Perspective of Supply Chain Cloud

Manoj Zeinali*

Tennessee State University, USA

**corresponding author*

Keywords: Supply Chain, Cloud Perspective, Soybean Processing, E-commerce Management, Influencing Factors

Abstract: Because Chinese enterprises are greatly affected by the "big and all" and "small and all" ideas, they are far from the open global manufacturing and supply chain management model and cannot meet the requirements of supply chain management. From the traditional management model to the supply chain management model soon.Based on the above background, the research content of this article is the influencing factors of soybean e-commerce management from the perspective of the supply chain cloud. This article explores this in the form of questionnaire surveys and management influencing factors analysis, in order to play a role of attracting a lot of attention to China's soybean processing enterprises. Inspiration. This article first analyzes the current problems faced by Harcotech soybean processing supply chain management. Based on the understanding of the soybean industry chain, an e-commerce management model for the soybean processing supply chain was constructed. Finally, experimental simulations proved that only GFI = 0.873, AGFI = 0.839, and NFI = 0.889 in the statistical inspection indicators did not meet the ideal standards, but were also greater than 0.8. The acceptable level is close to the 0.9 standard, and other fitting indicators have reached the ideal standard. The scale passed the validity test and the model was acceptable.

1. Introduction

China is the world's main producer and consumer of soybeans. China's output accounts for about 8.5% of the world's total output, while domestic demand accounts for nearly 20% of world consumption. It is the world's largest soybean importer. Because domestic soybean protein companies have introduced technology from the United States and Japan, the differences in technical level and starting point are not large.The competition is mainly reflected in how to strengthen management and reduce costs; American and Japanese companies that are in a

technologically dominant position have China has invested in building factories and using China as a processing base; since soy protein products are mainly used as additives in meat products, dairy products, and beverages, the trend of forming enterprise group industries is relatively obvious.

As a new management concept, the supply chain theory is receiving widespread attention, and its practical application is also increasingly deepening worldwide [1]. But as far as the supply chain of agricultural products is concerned, the current theoretical research is still weak [2]. On the one hand, because the agricultural product supply chain involves three industrial fields: agriculture (agricultural product production), industry (agricultural product processing), and circulation industry (agricultural product circulation), the problem of connecting the various links in the supply chain is more complicated [3]. On the other hand, due to insufficient attention to the supply chain of agricultural products [4]. Therefore, the application of supply chain theory to the production, processing and circulation of agricultural products is intended to provide theoretical guidance and decision-making basis for the introduction of supply chain management by agricultural product processing enterprises in China [5]. There is no special agricultural industrialization research abroad, but there is a similar development process as China's agricultural industrialization [6]. The integration of western countries is in accordance with the requirements of modern large-scale production, and through contractual forms, the agriculture and related industrial and commercial departments or enterprises are organically linked economically and organizationally to form an interdependent and mutually beneficial overall production mode. [7]. There are two types of organization: vertical (vertical) integration and horizontal (horizontal) integration [8].

Humair uses an automatic search algorithm to conduct daily surveys of e-commerce transactions on 10 major online auction sites, including eBay, which account for about three-fifths of the world's total seed plants. Many recognized invasive plant species (> 500 species) (ie species related to ecological or socioeconomic issues) are bought and sold on the Internet every day worldwide. The proportion of invasive species available online is significantly higher than non-invasive species. Generally, for a particular plant family, 30-80% of identified invasive species are detected at the auction site, but only a percentage of all species of the plant family are detected at the site. Compared with households with fewer transactions, households with more transactions have a higher proportion of invasive species. For woody species, there is a significant positive correlation between the number of areas where a species is sold and the number of areas invaded by that species. Humair's results suggest that biosecurity cannot effectively regulate online plant trade. In the future, automatic monitoring of e-commerce may help prevent the spread of invasive species, provide information on emerging trade connectivity across borders, and can be used in horizon scanning exercises for early detection of new species and their geographic origin in international trade Region [9]. With the development of the Internet, both practitioners and researchers need a cumulative, quantitative understanding of the satisfaction-loyalty relationship in the field of e-commerce.Wang conducted a meta-analysis that summarized empirical findings from multiple literature fields to examine the relationship between electronic satisfaction and multiple types of loyalty performance. Cumulative data show that electronic satisfaction strongly affects attitude loyalty, behavioral loyalty, and overall loyalty. In addition, through regression analysis, we find that industry characteristics, object satisfaction, and questionnaire types can alleviate the satisfaction-loyalty relationship in e-commerce. Wang's research results can be used as a data basis, and guide future theoretical and empirical research on the relationship between satisfaction and loyalty in the field of e-commerce, and provide support for practical development. Wang's research not only deepened the understanding of the relationship between electronic satisfaction and loyalty, but also identified the correct samples and measurement methods. In addition, we demonstrated the advantages of promoting electronic satisfaction, enhancing brand satisfaction, and understanding the industry structure to increase revenue for companies, and provided guidance for business

management in e-commerce [10].

Supply chain management is a kind of management that adjusts the logistics, information exchange, data sharing, inventory control and other means between various cooperative enterprises to integrate them into a whole, so as to achieve overall efficiency, energy saving, and ultimately improve the customer experience. the way. From a theoretical point of view, due to the subdivided nature of e-commerce, even small operating differences in different forms of e-commerce platforms can lead to completely different management quality measurement methods. Because of this, there is no unified measurement model for electronic service management in the field of e-commerce.

2. Proposed Method

2.1. Supply Chain Management

The supply chain has the characteristics of complexity, dynamics, intersectability, etc. In the traditional supply chain, it generally includes several links of supply, manufacturing, assembly, distribution, retail and consumption, each link corresponds to different enterprises. In this chain, the core links and enterprises will be different according to different industries.

Supply chain management is the overall management of design, execution, and monitoring around various links in the supply chain, including planning activities such as material procurement, assembly manufacturing, and business distribution. It not only needs to make the product meet the service needs, but also coordinate the key members of the supply chain to reduce the overall cost of the supply chain and achieve the goal of win-win cooperation. The most important role of supply chain management is to effectively integrate the information flow, capital flow and logistics of the enterprise. Supply chain management regards the association of upstream and downstream related companies as a whole, taking the core enterprise as the center, and through the interaction of information between upstream and downstream, it integrates complicated inventory management information, coordinates the resources between enterprises, and finally achieves more Good for business purpose. As an integrated management system, supply chain management provides a new idea for inventory management. The quality of supply chain management directly affects the management cost and transaction efficiency of the enterprise. The better the related activities of the enterprise, the lower the management cost, the higher the transaction efficiency, and the higher the company's revenue; on the contrary, the worse the coordination, the higher the management cost, the lower the transaction efficiency, and the higher the company's revenue. Its reduction. Managers generally believe that total cost is an important indicator of company performance, and inventory management is the top priority of cost. In order to minimize the total cost to the greatest extent, it is necessary to scientifically manage and control the inventory based on the supply chain management, and greatly improve the efficiency of the entire supply chain.

The essence of supply chain management is to optimize suppliers by linking suppliers, distributors, retailers and other companies on the chain in order to shorten the production process and quickly deliver products to customers in need. This approach, on the one hand, can reduce corporate inventory, reduce corporate costs, and better allocate social resources; on the other hand, through the information network, production and sales links can be organically linked, so that capital flows, logistics, and information flows throughout the supply The chain is unimpeded, and the product is finally delivered to consumers at a reasonable and advantageous price.

In essence, supply chain management is based on the end customer and customer satisfaction as the starting point of management, and this central point runs through the entire supply chain process. Different from the previous inventory management and processing sequence, supply chain management is based on the actual needs of customers in the market to plan and organize production through backward and forecasting methods. Customers are involved in the product from

the design stage, so that the product can truly meet the customer. Demand.

2.2. Supply Chain Management in an E-Commerce Environment

In the B2B e-commerce environment, the supply chain has changed from a patchwork of purely functional modules into a comprehensive, three-dimensional new network model. The scope of supply chain management also extends from inside the company to outside the company, from one department to another, and even cross-industry management appears. The unity and unification of e-commerce and the market has a complementary relationship, which is mainly reflected in the following: on the one hand, in addition to promoting the rapid development of e-commerce, information technology has also penetrated into various independent industries, and the boundaries between industry and industry have gradually strengthened: On the other hand, it promotes the information transfer and communication between producers and consumers, and this information technology in turn promotes the development of e-commerce. The unification of the market also promotes the consistent strategic development direction of individual enterprises in different fields and other enterprise groups, making the exchange of information and capital flows between enterprises more complex and frequent.

Through the network, it is possible to make the information transmission between the various links in the supply chain management (suppliers, manufacturers, distributors and customers). Avoid asymmetry of information transfer. At the same time, the communication channels between enterprises have been expanded, greatly improving the speed of information transmission, improving the timeliness of information transmission, and reducing unnecessary expenses of the enterprises themselves.

Compared with previous integrated supply chain logistics involving many departments and personnel, complicated processes, opaque processes, and the need for many departments to come to the factory to inspect the goods, e-commerce makes the entire logistics process open and transparent through the online trading platform, greatly saving At the same time, many suppliers do not know the prices of competitors, forcing each supplier to consider reducing its profit margin and improving the quality of its own products in order to obtain more opportunities for cooperation.

The previous transaction activities focused on the realization of paper contracts and manual transfers by both suppliers. E-commerce implements activities such as order delivery and currency payment through the network platform, provides traceability information search, makes the entire transaction process transparent, reduces or avoids unnecessary losses caused by human factors, and ensures the safety of capital circulation. Sex. The convenience and security of e-commerce have been more widely used in enterprises. In the e-commerce platform, the supply chain is to help enterprises create a smooth flow of information within the enterprise, between customers and suppliers.

After comparing traditional supply chain management with e-commerce supply chain management, under the e-commerce environment, real-time data and information are used to communicate and share across the supply chain at all stages of the supply chain, thereby more effectively improving corporate efficiency and reducing cooperation risks. Reduce enterprise management costs and bring benefits to the enterprise. In the e-commerce environment, in order to meet the market's requirements for high quality, high flexibility, and low cost for enterprise production and management operations. The new supply chain management must break through the traditional management model of procurement, production, distribution and service. It is necessary to consider the various businesses within the enterprise and between the nodes of the supply chain as an organic whole.By coordinating the information flow in the supply chain, Capital flow and logistics organically integrate the supply chain inside and outside the enterprise for management,

and finally form an integrated supply chain management system. The application of e-commerce in supply chain management enables the supply chain to share a global network, enables small and medium-sized enterprises to join the global supply chain at a lower cost, makes up for the shortcomings of the traditional supply chain, and promotes the development of the supply chain.

2.3. Influencing Factors of Soybean E-Commerce Management from the Perspective of Supply Chain Cloud

Cloud technology is a commercial implementation of the development and integration of traditional computer technology and network technology, such as grid computing, distributed processing, parallel processing, utility computing, network storage, virtualization, and load balancing. It is a network technology and information based on cloud computing business model applications. Generic term for technology, integrated technology, management platform technology, and application technology.

There are two ways for cloud computing to expand in e-commerce platforms: one is horizontal expansion and penetration into other industries. The other is vertical expansion, that is, deepening the platform content, including improving the transaction efficiency of existing parties, increasing the frequency of transactions, and enhancing user stickiness. Under the cloud technology environment, e-commerce platforms reduce the IT access threshold and share e-commerce service management through innovative access modes, attracting many SME suppliers to settle in. Through this port-bus form, the information outside the original platform is transformed into the internal controllable information of the platform. While enriching the product / service information resources of the platform, the platform as an "information bank" for information review and security management has also reached Higher level. The security of website information is significantly related to the behavioral intentions of website users.

The impact of cloud technology on the platform's interpersonal service quality at the technical level is mainly reflected in the service background. The powerful data collection and analysis capabilities of the cloud-based system background can not only predict users' daily operation problems, continuously improve the platform's intelligent and autonomous response range, but also effectively assist users with traditional platform customer service issues. Compared with traditional e-commerce platforms, the cloud-based back-office system strongly supports the platform to incorporate various companies in the product industry supply chain into the platform's internal business ecosystem, unifies the external operation platform, and standardizes the operation interface, thereby greatly reducing customer shopping Discomfort. The platform's big data analysis system, on the one hand, can guide the platform and suppliers to continuously adjust their sales plans and implement precise marketing in accordance with the potential needs of customers. On the other hand, it will help the platform's customer service system to improve its interaction capabilities and improve the effectiveness of the platform's communication with customers. This interactive technology based on the e-commerce website system is considered to be an important factor that affects the customer's perception of usability and usefulness, and then affects the customer's trust and acceptance of the shopping website.

Under the cloud technology environment, the powerful and fast information collection capability derived from information sharing, combined with the platform's basic computing storage function support, provides reliable and rapid operational support for the platform's service function components. Fixing the entire shopping process within the platform has greatly enhanced the platform's ability to manage and correct transaction orders. In the event of a transaction problem, the platform can respond quickly. Positive user experience research suggests that a good online shopping experience is obviously related to the responsiveness of the website.

3. Experiments

3.1. Experimental Models and Objects

The soybean industry chain includes all links and the entire process of soybeans from seedling cultivation to field management, soybean processing to distribution, market sales, etc.Each link on the main line of the high-tech soybean industry chain is related to many other industries, and agricultural technology The basic factors such as agricultural information and so on affect the soy industry chain, and finally form a network distribution with agricultural production as the main line. The soybean processing supply chain is a branch of the agricultural industry chain, and its core enterprise, the soybean company, integrates the supply of major agricultural materials and soybean processing. Soybean processing supply chain is a broader enterprise structure model, which includes all participating node companies, starting from the procurement of raw materials, through the production, processing, and distribution of different companies in the chain to the final consumer. Taking the final actual selection of enterprise soybean suppliers as an example, the evaluation criteria tailored and selected for the enterprise are used for comprehensive scoring. Judge the three companies that entered the company's final supplier selection list.

3.2. Experimental Design and Data

Based on the model established in this paper, the proposed basic scale is combined with a cloud-based e-commerce trading platform that is actually operated to make matching modifications. A total of 25 questionnaires were designed for the six variables in the questionnaire. In addition to personal basic information and the overall perception of user experience, there were 36 questionnaires. The research questionnaire is divided into three parts. The first part is a survey of the personal attributes of the platform users, the second part is a survey of the users 'perception of the dimensions of the cloud e-commerce platform's service quality, and the third part is a survey of the users' perception of the overall quality of the cloud-based e-commerce platform. All questions are measured using the Likert five-comment scale, which focuses on investigating the actual perceived differences in user experience with the supply chain cloud-based e-commerce platform. This research was conducted in the form of an online questionnaire and was conducted through "Questionnaire Star" (www.sojump.com). A total of 53 questionnaires were collected in this preliminary survey. Excluding those who have not used the platform and those who have not taken it seriously (select the same option all), 39 valid answers were obtained. By analyzing the data entered in the recovery answer sheet, the quality and validity of the questionnaires of the original questionnaire were tested and revised, and then a final scale was formed to prepare for the next formal large-scale survey.

4. Discussion

4.1. Environmental Factor Analysis

The observation of the market environment should focus on the emergence of similar alternative products and the hot selling of traditional alternative products. This article divides the possible results into three different levels, and makes corresponding prediction adjustments, as shown in Table 1.

Table 1. Competitive product impact forecast adjustment plan

Grade	Similar products can replace new products, average market acceptance	Similar products can replace new products with high market acceptance	The birth of key technological innovations
Measures	Continue to observe, do not adjust sales forecasts for the time being	20% reduction based on sales forecast for next phase	40% reduction based on sales forecast for next phase

According to the forecast adjustment plan in Table 1, the environmental factor analysis is shown in Figure 1.

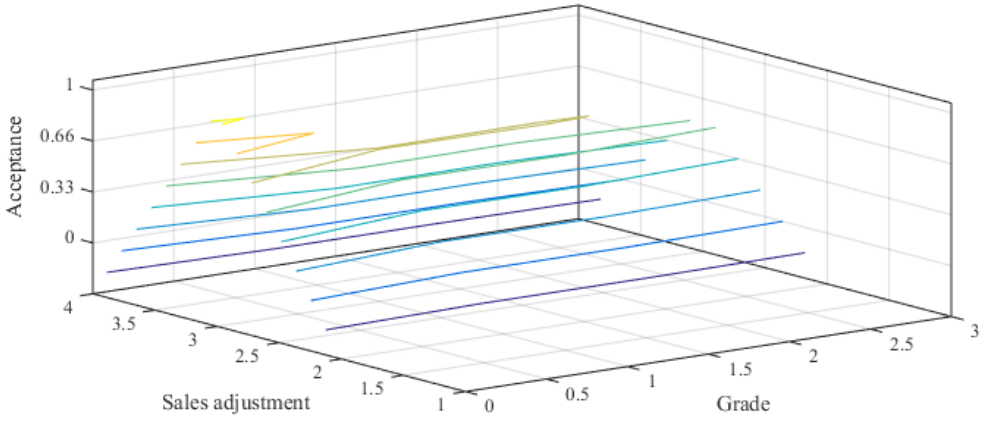

Figure 1. Environmental factor analysis

Similar products can replace the emergence of new products. The diversification of products and the simplification of the way to obtain online shopping information make it possible for new products to quickly flow into and occupy the market. Therefore, the competitive pressure on existing products has become huge. At the same time, the popularity of the Taobao platform makes it very easy to obtain sales data. By analyzing the changes in the market sales of new products to predict the impact on the sales of the products operated by the company, it has become a matter of practical significance and worthy of attention by enterprises. The use of complex forecasting models to predict the market potential of similar new products, the prediction results do not reach a high accuracy, because the forecasting model established for high-tech products does not match the actual situation of simple commodities; second, the new varieties The variety makes the forecasting workload huge.In the end, the occupation of market space by new products is a process. The elimination of old products and even the circulation are a slow process. In the process of delayed market response, the seasonal characteristics of the products operated by the company and the small and medium-scale production The flexibility allows enterprises to adjust quickly according to market changes and avoid the occurrence of large losses. Therefore, a simple observation of the sales growth of new products on the e-commerce platform is enough to understand the market share of new products.

4.2. Validity Analysis

For the influencing factor scale, we first test whether the variables are suitable for exploratory

factor analysis. The results of the KMO test and the Bartlett spheric test are shown in Table 2.

Table 2. KMO and Bartlett spherical test results of influencing factors

Kaiser.Meyer.Olkin		Kaiser.Meyer.Olkin
Bartlett's sphericity test	Approximate chi-square	6369.634
	df	275
	Sig.	0.000

The KMO value of the sample is 0.959> 0.5, which indicates that there are more common factors among the variables and the net correlation coefficient is low, which is suitable for factor analysis. The significance probability Sig of the chi-square statistical value of the Bartlett sphere test is 0.000 <0.001, which indicates that the null hypothesis that the correlation coefficient matrix is the identity matrix is not valid, and there is correlation between the data. It also supports data for factor analysis. Further, the principal component analysis method was used to carry out exploratory factor analysis on the influencing factor scale, and the confirmatory analysis results of the variables obtained are shown in Figure 2.

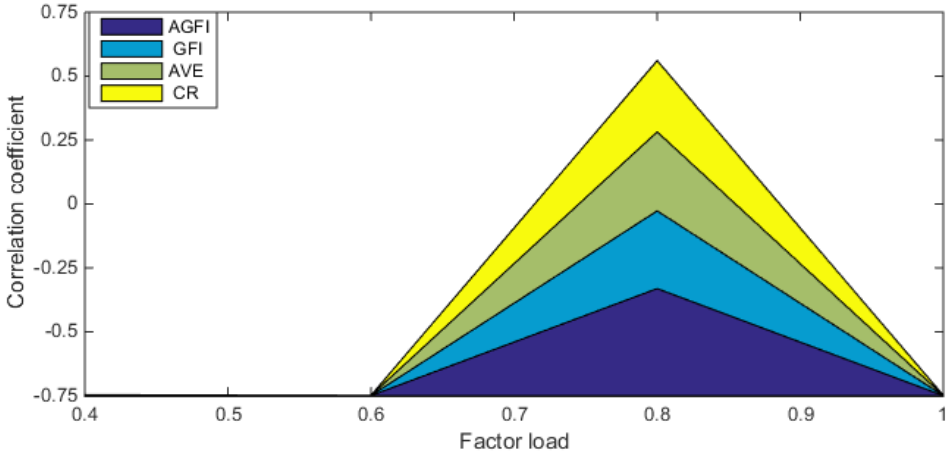

Figure 2. Variable confirmatory analysis results

It can be seen that the measurement item factor load for each measurement dimension variable is between 0.647 and 0.966, and the correlation coefficient between the variables is between -0.27 and 0.52. All standardized paths are statistically significant at least at the level of 0.01 statistical significance. The CR values calculated based on the factor load values of each measurement item are greater than 0.8, and the minimum value of the AVE value is also greater than 0.5, which indicates that the model has good internal quality and meets the requirements of convergence validity. Among all fitting indicators, P = 0.000 does not satisfy P> 0.05, but since the chi-square value is susceptible to the number of samples, when the sample is large, the chi-square value will also become relatively large, resulting in a significant probability p value. It becomes smaller, and it is easy for the hypothetical model to be rejected. Therefore, in the case of large samples, other adaptation statistics should be considered in addition to the reference p-value. Among the other statistical testing indicators, only GFI = 0.873, AGFI = 0.839, and NFI = 0.889 did not meet the ideal standards, but were also greater than 0.8 acceptable levels and were close to the 0.9 standards, and other fitting indicators reached the ideal standards. The scale passed the validity test and the model was acceptable.

4.3. System Mass Path Effect Analysis

The analysis of the path effect of the system's mass composition dimension is shown in Figure 3.

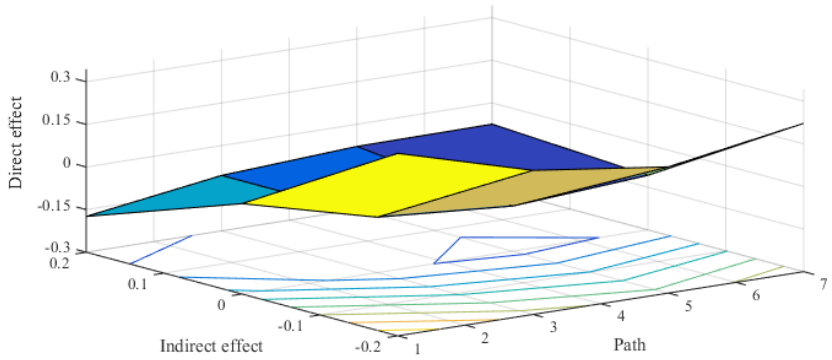

Figure 3. Analysis of the path effect of system quality component dimension

In terms of the impact of the four dimensions of system quality on information quality, the change in system security under the cloud technology environment has the largest direct effect on platform information quality, reaching 0.291. The reliability of the system is second, and the direct effect on the platform information is 0.204. The responsiveness of the system has a negative direct effect on the quality of the platform information, with an effect coefficient of -0.143. This has a certain relationship with the attributes of information quality itself.The higher the quality, information credibility and timeliness of information quality requirements, the system's information review and supervision process will inevitably be more complicated and time-consuming, so the system It is also normal and reasonable to have a negative correlation with the level of information quality. There is a good direct effect between the ease of use of the remaining system and the quality of service, with a coefficient of 0.256, indicating that the change in the ease of use of the system has a certain correlation to the personalization and interaction of the service quality of the platform.

4.4. QoS Path Effect Analysis

In the context of cloud technology, the perspective of service quality discussion is mainly focused on the one-to-one interactive services provided by the platform, including the interaction between users and platform customer service and the interaction between users. The analysis of the path effect of service quality in this experiment is shown in Figure 4. Show.

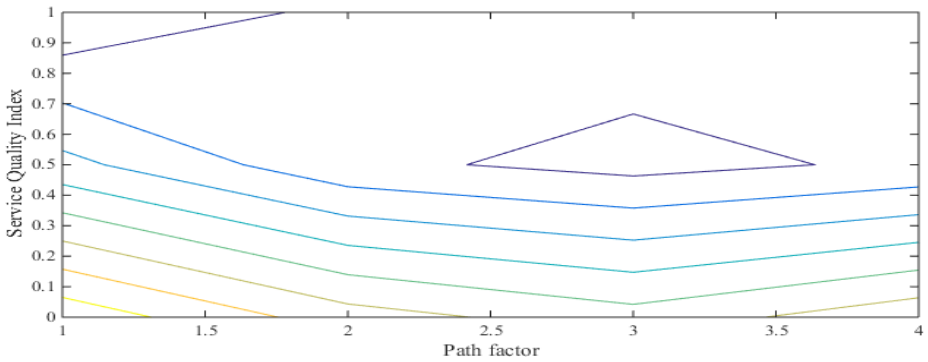

Figure 4. QoS path effect analysis

The user experience comes from the service quality of the platform customer service and the quality of the construction of the platform virtual community, not the quality of the platform service that includes all service processes in the traditional sense. As the service quality defined in this article is limited to narrow areas such as personalization and interactive services, and is mostly in the area of human interaction, it is limited by the cloud system technology platform. The final path coefficient between service quality and user experience is 0.08. The direct positive impact of the service quality based on platform personalization and interaction perspective on the platform user experience under the cloud technology environment has not been effectively confirmed, and it is normal. Because the quality of service itself is very limited by cloud technology, in the structural equation model verification, it is only concluded that there may be an interaction relationship with the ease of use of the system quality, and the impact on the end user's operating experience and other parties involved in the model is not valid .

5. Conclusion

This article is mainly from the perspective of using the supply chain cloud technology to change the system quality of the e-commerce platform, and discusses the changes in service quality that customers enjoy on the platform in the new e-commerce system environment. By constructing a measurement model of the service quality influencing factors of the cloud-type e-commerce platform from the dimensions of system quality, information quality and service quality, to specifically explore how cloud technology affects the actual purchase operation experience of customers, and then achieve more targeted application of cloud technology to improve The quality of platform management increases the purpose of platform customers' purchases.

The introduction of supply chain management by soybean companies is of great significance. The introduction of supply chain management during the development of the soybean processing supply chain will effectively alleviate the contradiction between supply and demand in the raw material market, reduce uncertainty in the operation of various entities, and reduce logistics costs, which is beneficial to the establishment of enterprises. Partnerships and improve interest mechanisms, and comprehensively improve the competitiveness and performance of enterprises.

There are still some shortcomings in this article. Because the e-commerce management model is a relatively advanced subject from the perspective of the soybean supply chain cloud, the organizational model and supporting system proposed in this article lack theoretical evidence from many scholars in theoretical research; due to time, The limitation of data acquisition, practice verification and author's ability failed to make a comprehensive research on the supporting system of the soybean processing supply chain management model, and I hope that this rationale system can be further improved in the future.

Funding

This article is not supported by any foundation.

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

[1] Turkulainen V , Swink M L .(2017). "Supply Chain Personnel as Knowledge Resources for Innovation A Contingency View", Journal of Supply Chain Management, 53(3),pp.41-59.

[2] Baoguo S .(2016). "Development Strategy of Agricultural Products Processing in China", Strategic Study of Chinese Academy of Engineering, 18(1),pp.48-55.

[3] Evanschitzky H , Goergen M .(2018). "Looking Forward, Looking Back: British Journal of Management 2000-2015: Looking Forward, Looking Back", British Journal of Management, 29(1),pp.3-9.

[4] Minai Y , Miura T , Yonezawa C .(2016). "Certified reference Materials of Agricultural Products and Foods Bearing Radioactivity from the Fukushima Nuclear Accident", Journal of Radioanalytical & Nuclear Chemistry, 8(2),pp.167-177.

[5] Zhang H , Qiu B , Zhang K .(2017). "A New Risk Assessment Model for Agricultural Products Cold Chain Logistics", Industrial Management & Data Systems, 117(9),pp.1800-1816.

[6] Ertekin C , Firat M Z .(2017). "A Comprehensive Review of Thin-layer Drying Models Used in Agricultural Products", C R C Critical Reviews in Food Technology,57(4),pp.701-717.

[7] Szpyrka E , Magdalena Słowik-Borowiec, Matyaszek A .(2016). "Pesticide Residues in Raw Agricultural Products from the South-eastern Region of Poland and the Acute Risk Assessment", Roczniki Państwowego Zakładu Higieny, 67(3),pp.237-245.

[8] Zayats M F , Leschev S M .(2018). "A Distribution Chromatography Method for the Identification of Pesticides in Their Mixtures and Agricultural Products", Journal of Analytical Chemistry, 73(5),pp.486-496.

[9] Humair F , Humair L , Kuhn F .(2016). "E-commerce trade in invasive plants", Conservation Biology, 29(6),pp.1658-1665.

[10] Wang D , Zha Y , Bi G .(2018). "A Meta-analysis of Satisfaction-Loyalty Relationship in E-Commerce: Sample and Measurement Characteristics as Moderators", Wireless Personal Communications, 103(1),pp.941-962.