

## Optimization Strategy for the Collaboration of Home Decoration Supply Chain in Hunan, China

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### Abstract

In order to improve the modernization level of the home-decoration industry, this study explored the optimization strategy for the collaboration of supply chain in Hunan China. The research investigated current situation of home decoration in Hunan, and formulated the optimized scheme of collaboration. Previous literature was surveyed, the research method of observation and interview was used to investigate the current situation, and the induction method was used to analyze and summarize the data. Research results show that the cloud system can provide a new model for service providers, a more reasonable resource sharing system between members of the home decoration supply is recommended to build. For business decisions between upstream and downstream members of the supply chain it is highly suggested. The application of cloud system as the platform of home decoration can also reduce the operating costs of suppliers and improve customer satisfaction at the same time.

**Keywords:** Decoration industry, Supply chain, Integration strategy, Cloud system, Home decoration platform

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## Introduction

### Research background and significance

Modernization of industrial and supply chains, developing strategic emerging industries, and accelerating the development of modern service industries are the main tasks of China's economic development at present (Central Committee of the Communist Party of China, (2020). Therefore, the strategy of "Three Highs and Four New" is put forward in Hunan, China, which requires leading industries to enhance their advantages, while the traditional industries are required to upgrade and build brands.

However, according to the "Regional Innovation Capability Evaluation Report for China (2020)", the regional innovation capability of Hunan in 2020 belongs to the second echelon, which is lower than the national average. Therefore, the province must increase its attention to the industrial chain of design from a height of strategic. Among them, it is of great value and significance to deeply study the industrial chain of architectural decoration design in Hunan. The collaborative optimization scheme of supply chain is put forward for upgrading of industry and development of high-quality product.

#### Research questions

The main research questions of this study are:

1. What is the situation of home decoration industry from a supply chain perspective in Hunan, China?
2. How to specify the optimized scheme of collaboration according to the industrial supply chain of home decoration in Hunan?

### Research Scope

The building decoration industry can be divided into the following: public building decoration, residential decoration, and curtain wall decoration. However, the objects and purposes of decoration, and the construction methods and procurement channels are different. Therefore, this paper only takes the focus on residential decoration for discussion.

Changsha is the political, cultural, and commercial center of Hunan, as it is the capital of this Province. The decoration industry in Changsha are the most developed because it has the most abundant resources. Consumers in prefecture-level cities who pursue decoration quality will come to Changsha to find decoration companies and purchase building materials and home furnishing. Changsha is the representative and weather vane of the decoration industry. Therefore, the scope of field investigation and action research is mainly in Changsha.

The content in the text is relatively huge. For promoting the design industry, this article mainly analyze the home decoration industry from the perspective of business operation management rather than the view point of design itself.

## Literature review

### Home decoration industry

Home decoration market in China:

The space of the home decoration industry in China is broad and grow stably. The rate of standardization also continues to increase. iResearch (2021) proposed the market size in 2020 have reached 2,616.3 billion, a year-on-year increase of 12.4%. With the continuous release of the demand for renovation of old houses and the incentives of fine decoration policies, the market size of home decoration industry is expected to reach 3,781.7 billion in 2025, with an annual growth rate reached 7.6%.

Mode of home decoration:

After decades of development, the home decoration industry in Hunan now presents several modes at the same time. Among them, the traditional mode is the most common, and the integrated mode is the mainstream of future development. Integrated home decoration means the home decoration company breaks the pattern of simple combination of main materials and auxiliary materials in the previous home decoration mode by integrating all industrial resources related to home decoration, and combines building materials, furniture, household appliances, soft decoration, and all the materials needed for decoration to form a home decoration industry chain.

### Service supply chain

Service of supply chain:

There is no doubt that supply chain is a hot topic in related research, and scholars have studied it in great detail. Scott and Westbrook (1991) proposed the pipeline map and the supplier relationship grid to develop a management strategy for enhancing supply chain effectiveness. Emerson and Grimm (1998) pointed out that customer service has increasingly become an important factor in the field of enterprise supply chain management. By providing various service activities to meet customer needs, enterprises can not only effectively improve their competitiveness, but also achieve good customer satisfaction, customer loyalty and enterprise performance. Lee and Whang (1999) studied the design of cooperative incentive mechanism and risk sharing among members in the supply chain. Ellram et al. (2004) pointed out that the service supply chain is a chain structure composed of the most upstream service suppliers to the most downstream customers in the service field. Sengupta et al. (2010)

proposed and verified a supply chain model suitable for the service sector with empirical research methods. In order to provide managers with a framework to be used in implementing supply chain management, Croxton et al. (2016) provided the strategic and operational descriptions of the eight supply chain processes identified by members of The Global Supply Chain Forum. In conclusion, there are many concepts, models, and research methods related to supply chain that can be referred to.

Cloud computing and supply chain

Most of the existing literatures only provide a preliminary model or framework for the combination of cloud computing and supply chain, while few literatures analyze the combination of cloud computing of and

supply chain in specific industry. Lindner et al. (2010, 2011) combined different cloud computing types and enterprise service requirements, combed different cloud computing service models, and established a framework of cloud supply chain. Schrdl (2012) believes that supply chain management, as an operation process, requires multi-directional interaction between different enterprises. Based on SCOR (supply chain operation reference model), this paper analyzes whether the information system based on cloud computing can provide better support for the supply chain. Zhou et al. (2012) gave a conceptual model of cloud supply chain based on the application of cloud computing in supply chain management and guided enterprises to find out how to migrate their own supply chain management to the cloud through six steps.

## Research Method

### Literature Survey

By consulting and collecting the literature and monographs on decoration industry management, business model and sustainable development of housing in China, European and American, a large number of data are collected, sorted and analyzed.

### Field Survey

On-site investigation of large-scale home building materials markets in Changsha was conducted. These include Red Star Macalline Global Home Living Plaza, Xi Yingmen Building Materials and Furniture Plaza, Changsha Wan Jiali Home Building Materials Plaza, Ou Yada Building Materials Home Furnishing Plaza, San Xiang Home Furnishing Building Materials Plaza, and so on. The investigation provided better understanding of the categories, brands and supporting services provided by suppliers in Changsha. In the meantime, observations of the flow of people in shopping malls and the consumption tendency of consumers is also recorded in detail.

### Personal interview

Face-to-face interviews to members of the Hunan Association of Home Decoration Industry was conducted to understand the development and trends of home decoration. Similar interviews to home decoration designers from mainstream home decoration companies and design studios was conducted to communicate the problems encountered and their solutions in home decoration process, meanwhile, to understand upstream and downstream supply chain conditions and consumer trends. Same interviews with major building materials and home furnishing suppliers and store managers were conducted to understand their turnover, operations and problems encountered. Finally, the interviews with consumers who are undergoing renovation or have home decoration needs was conducted to understand consumption strength, consumption intention, decoration problems encountered, decoration design, and procurement channels etc.

### Induction

After collecting a large number of theoretical and field research data related to the market, consumers, employees, upstream and downstream industries and industry associations of Changsha home decoration

industry, the current situation of Changsha home decoration industry was summarized, and the collaborative optimization scheme of home decoration supply chain was put forward.

## Results and Discussion

### Results

The model of traditional home decoration industry in Hunan was obtained through network research, field investigation and personal interview (Figure 1). The upstream are building materials and furniture manufacturers, the midstream are home decoration enterprises, building materials and furniture dealers, and the downstream are consumers. It can be seen from the model that decoration companies play a leading role as the central link in the chain.

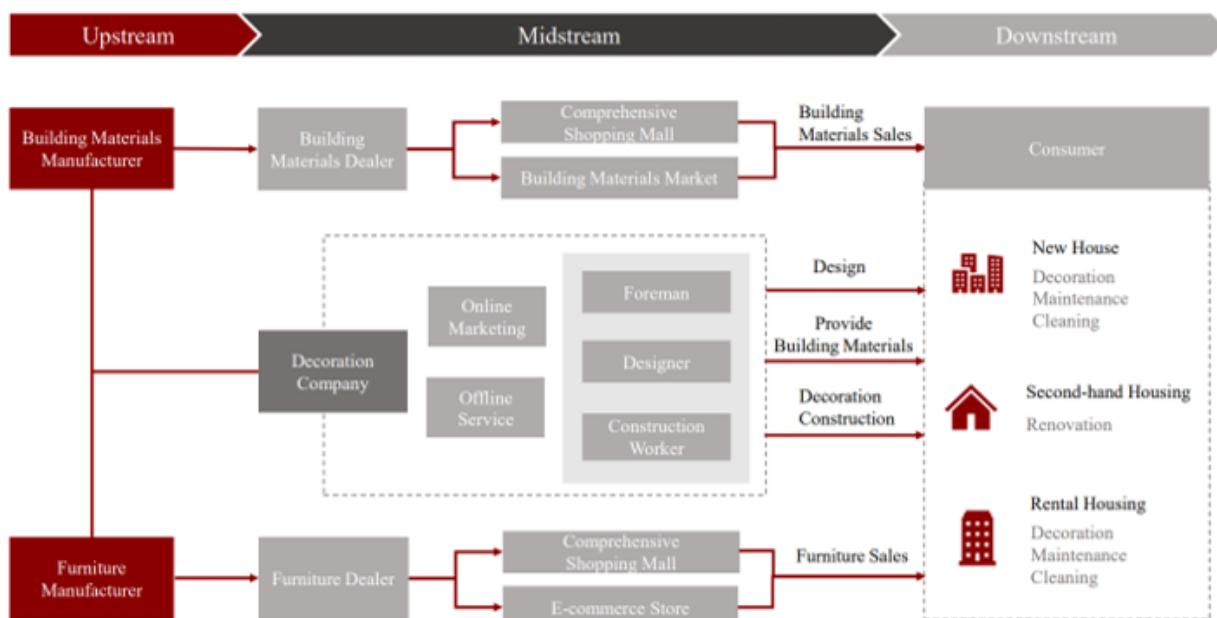
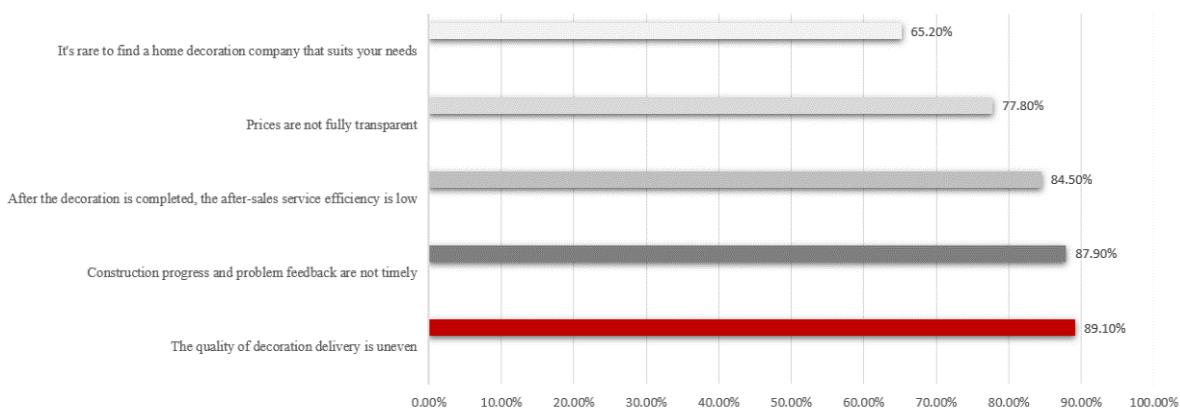


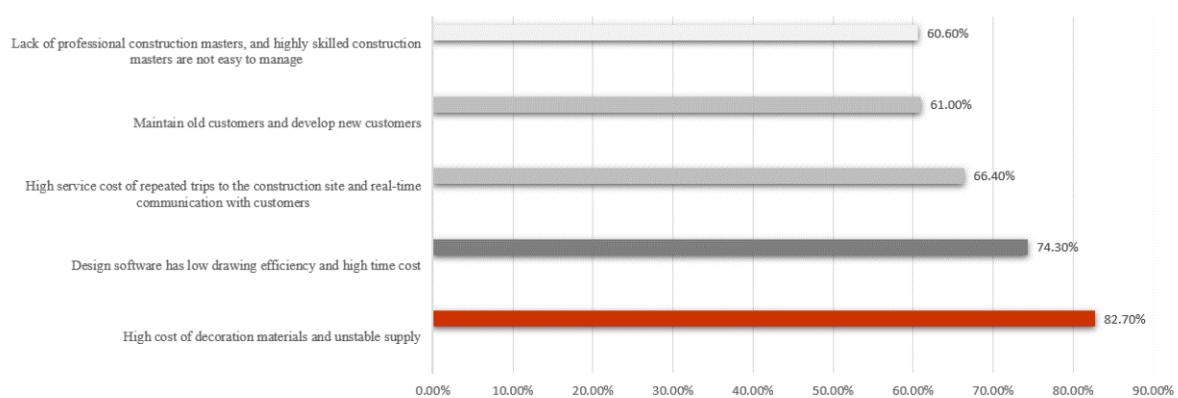
Figure 1 Traditional industry chain model of home decoration in Hunan

The top five problems need to be solved urgently in the process of home decoration service is shown in Figure 2 and Figure 3, as surveyed through field research and personal interviews of consumers and home decoration service providers (Figure 2, Figure 3).



**Figure 2** Survey results of the top five issues that consumers consider to be the most urgent to address in the home decoration service process

The results show that the uneven quality level of decoration delivery is the most urgent problem to be solved. The next problems to be solved urgently are the untimely feedback of decoration construction progress and problems; the low efficiency of after-sales service; opaque prices; and finding a home decoration company suitable for their own needs.



**Figure 3** Survey results of the top five issues that home decoration service providers consider to be the most urgent to address in the home decoration service process

For home decoration service providers, the high cost of decoration materials and unstable supply are the most important problems to be solved, because the cost is directly linked to the final profit. As for the low drawing efficiency of the design software, the high cost of real-time communication with customers, the maintenance of old customers, the development of new customers, the lack of professional construction masters, and the difficult management of skilled construction masters are all headaches for suppliers.

## Discussions

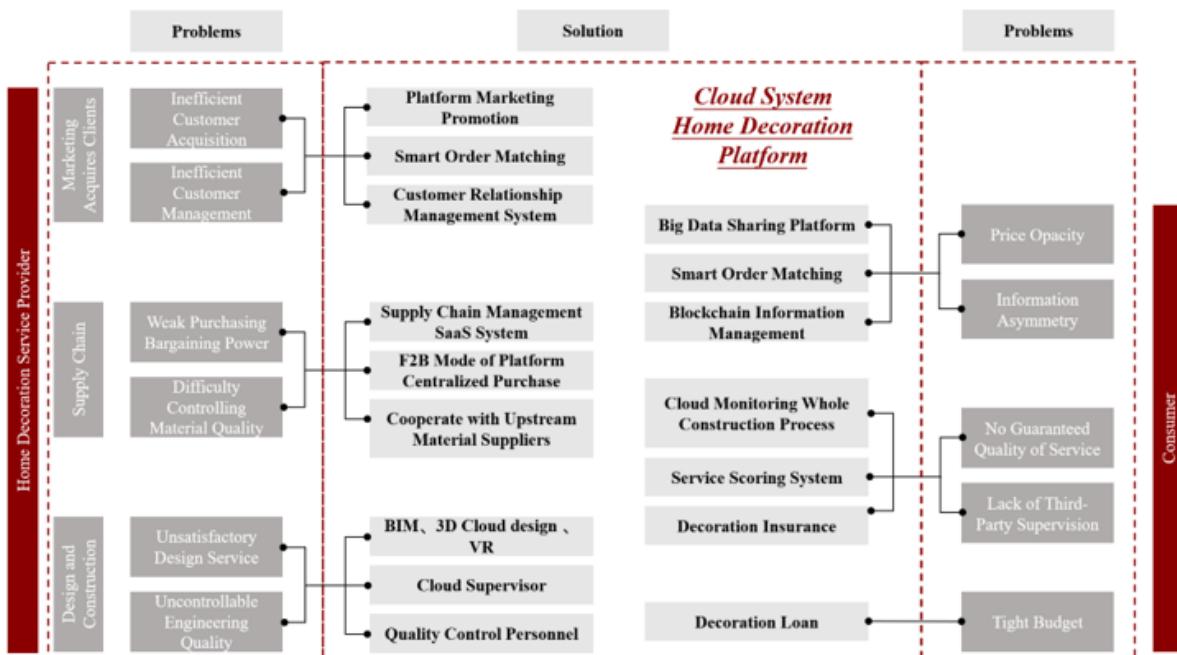
### Current situation of home decoration supply chain

Home decoration companies are constantly upgrading from the traditional mode of non-standard process, difficult management, long construction cycle and poor reputation to the new integrated mode of integration, intelligence and Internet empowerment supply chain system. The whole industry tends to provide customers with integrated, personalized and customized home life solutions. The future competition of home decoration enterprises will be brand-based comprehensive competition in product richness, cost performance, delivery speed, service experience and customer participation. To a large extent, the essence of this competition will be reflected in the synergy of home decoration supply chain. At the same time, the collaborative optimization scheme of home decoration supply chain only focuses on the most urgent problems faced by consumers and home decoration service providers.

### Cloud system of home decoration platform

Proposal of cloud system for home decoration platform

A cloud system for home decoration platform (Figure 4) as a collaborative optimization solution model for the pain points of the traditional home decoration industry is proposed. The cloud system for home decoration platform is oriented to the needs of supply chain members, relying on advanced IT technology to build an end-to-end, integrated and collaborative supply chain operation management platform.



**Figure 4** Pain points of traditional home decoration industry and solutions of cloud system home decoration platform model

The cloud system of home decoration platform provides marketing promotion, smart order matching and customer information management systems in response to the problems of low efficiency in customer acquisition and low efficiency in customer management. The platform provide SaaS system of supply chain management and f2b mode of centralized purchase of the platform, directly cooperating with upstream suppliers to reduce costs from the source. Thus, it can strengthen the weak bargaining power of procurement at the supply chain end and the difficulty in controlling the quality of materials. In response to the problems of unsatisfactory design service and uncontrollable engineering quality, the platform provides BIM, 3D cloud design, and VR software, combining online cloud supervision and offline quality inspection.

For consumers, the platform provides functions such as big data sharing and recommendation and smart order matching, which can solve the problem of opaque prices and asymmetric information of decoration materials and labor costs. Blockchain information management will ensure automatic data updates and information synchronization, which can eliminate consumers' trust anxiety. In view of the lack of guarantee of service quality and third-party supervision, the platform will provide equipment and technology to allow customers to monitor the whole construction process on the mobile client and score the service. In addition, the platform also offers renovation insurance and loans to address overall project delays due to lack of funds.

### **Two modes of cloud system for home decoration platform**

There are two modes of cloud system for home decoration platform for the construction:

The first one is self-sufficient, in which home decoration companies build independently or jointly build with other companies. For example, DELL, through its self-built cross-enterprise collaborative management platform, integrates various resources well, helps enterprises manage and operate efficiently, and provides better services to customers.

The second is to manage the collaboration platform through the intervention of third-party managers. As for the choice of third-party managers, they must be jointly certified by all property rights parties. Only the third-party managers with credibility can better coordinate and manage all property rights subjects. That is, supply chain members do not need to develop their own platform. As long as they pay monthly, they can obtain the most rigorous and efficient collaborative management system, which has no investment risk and sunk cost, and can absolutely ensure the security of customer data. All relevant government management departments are also integrated into the supply chain management system to cooperate with each other and supervise each other, so as to effectively control and reduce the collaborative cost. The above two ways of platform construction need strong financial support.

### **Advantages of cloud system for home decoration platform**

The cloud system for home decoration platform can help the product development of the whole chain. Under the supply chain management mode, through the forward-looking collaboration of product development and commodity management, the supply chain can provide professional advices on the early participation of building materials and furniture suppliers in the research and development process, and can solve the

contradiction between demand and supply from the source, which will affect supply chain operations. The system can detect problems in advance, reducing unnecessary risk and loss of efficiency.

The cloud system for home decoration supply chain platform also provides extended services through the supply chain. First, service-oriented supply chains serve consumers. The active communication with customers, the transparency of the order fulfillment process, the rapid response ability of delivery and after-sales reflected in the cloud system for home decoration platform can bring good customer experience and the spread of company reputation. Secondly, the service-oriented supply chain emphasizes the services to design companies, suppliers and dealers. The platform can help it improve the operate efficiency of the supply chain, reduce the inventory of the supply chain, reduce the waste and risk in the process, so as to reduce the cost of the system.

## Conclusion

The cloud system for home decoration platform is an ideal Internet platform, but it must rely on advanced and appropriate IT information construction and requires a lot of capital to invest in preliminary research. China's Internet technology and informatization construction are constantly maturing and improving. Once conditions permitted, as the optimized solution, the cloud system for home decoration platform can solve various pain points and difficulties in the supply chain of home decoration and promote the modernization and upgrading of the entire home decoration industry.

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