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Analysis of the Path to Improving the Integration and Allocation Efficiency of Hotel Supply Chain Resources

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Abstract: In today's highly competitive market environment, the rapid development of information technology and the rising expectations of customers are profoundly affecting all walks of life, especially the hotel management industry. Competition between hotels has largely transformed into competition between supply chains. However, there are many challenges and problems in hotel supply chain management. Improving the resource integration capability and allocation efficiency of the hotel supply chain becomes a key issue that hotel companies need to sort out urgently. The main purpose of this paper is to probe how to innovate the hotel supply chain management model by citing big data analysis technology. Specifically, this paper aims to build a supply chain database information system through data analysis and real-time monitoring to help hotels achieve efficient supply chain management. On this basis,this paper will analyze in depth about the future development trend of hotel supply chain management, to provide useful reference and inspiration for the sustainable development of the hotel industry.

Keywords: Hotel supply chain, big data analysis, inventory management, internet of things.

1. Introduction

Under the severe global economic downturn, the hotel management industry is facing competitive pressure, including increasing market competition pressure, significant seasonal demand fluctuations, efficient management of perishable goods, and uncertainty about supplier reliability. Along with stringent cost control requirements, these complex factors work together to require the industry to adopt more flexible and innovative strategies to meet challenges. Therefore, in this context, the strategic importance of hotel supply chain management has become increasingly prominent, becoming the key for the hotel industry to cope with challenges, maintain competitiveness, and achieve sustainable development. Compared with some well-known international hotel brands, Chinese hotels have limitations in internal system construction, business model innovation, and related management concepts.In the context of increasingly fierce global market competition, the traditional operation model and “vertical integration” production can no longer meet the requirements of enterprises to quickly respond to market demand.Given the current environment, to adapt to changes in market demand rapidly, the hotel industry tends to use its resource advantages to expand horizontally to cover more related areas. This trend has prompted the rise of the concept of "horizontal integration", which has given rise to a new production and management model that aims to improve

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overall operational efficiency and market adaptability through cross-domain resource integration and efficient collaboration. Hotel supply chain management, often known as SCM, is a term that describes the physical services that are established with hotels as the primary focus. Centralized supply chain management is the most common approach at the moment. This approach makes use of integrated programming and mixed integration programming to develop and solve the problem of allocating and managing different resources across hotels that are part of the supply chain.With the continuous deepening of supply chain management concepts, the development of hotels is gradually shifting from the traditional "vertical integration" model to "horizontal integration" [1]. Even in today's social climate, hotel companies that employ horizontally integrated supply chain management approaches still encounter numerous challenges, including unclear strategic planning, unfair distribution of resources, difficult relationships with suppliers, and slow response times to changes in market demand.

From the vantage point of big data technology, this article will investigate how hotels may optimize the allocation of resources in supply chain management and enhance corporate operating efficiency. The goal of supply chain management is to improve the competitiveness of the entire supply chain by achieving effective quality coordination and ensuring the continuous and stable quality assurance capabilities of each node enterprise. A full supply chain quality assurance system is built to accomplish this by creating a platform for quality information exchange. The hotel development industry must immediately go back to what it does best and strengthen its competitive edge.

2. Analysis of the Current Situation of Hotel Supply Chain

Supply chain management is an essential component of the hospitality sector, as is common knowledge. There are many departments that make up the typical hotel supply chain. These departments include the demand forecasting and planning department, the procurement department, the warehouse, and the inventory management department on the hotel side, and the logistics distribution department on the supplier side and in the intermediate area [2]. The provision of services to clients which are based on the materials and resources gained from suppliers is the objective of this organization. Before being transformed into acceptable forms, these materials are first subjected to a series of treatments and modifications that are designed to boost their worth. The conventional method of managing supply chains often results in a wide range of issues on account of its implementation. For example: first, a major challenge facing the hotel industry is the volatility of demand.because it makes it difficult to unify the SCM process; second, product life cycle traceability leads to additional waste; third, new competition and emerging markets disrupt the existing supply chain, resulting in new players; fourth, since many products require numerous suppliers, supplier performance is a key issue, which leads to unnecessary interruptions in supply chain management; fifth, transportation and other logistics restrictions pose challenges to the hotel industry; sixth, the hotel industry lacks training on logistics and supply chain. It is difficult to accurately predict demand in the hotel industry due to a number of factors, the most important of which are as follows: first, the supply chain of the hotel industry is extremely complex; second, the supply chain of the hotel industry involves multiple stakeholders; third, hotels typically require a large amount of inventory, which increases the costs associated with holding inventory; fourth, a big amount of perishable goods may lead to waste and increased costs; and fifth, the hotel industry is characterized by seasonality and external factors.

3. Integration Strategy of Hotel Supply Chain Resources

Hotel supplier relationship management is a complex and critical process that involves establishing a rigorous framework in strategic planning to effectively manage all interactions with an organization's

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suppliers. The core goal of this process is to reduce the risk of failed collaborations and maximize the value of these interactions. In today's competitive business environment, hotels must establish close and productive relationships with key suppliers to discover and create new value, improve overall operational efficiency, and reduce the risk of supplier relationship management failures.

The key factors for organizational success are strategic resources and supplier relationship management. They not only focus on the establishment and maintenance of relationships but also emphasize the joint creation of value through collaboration and communication. In this process, the use of big data technology provides hotels with unprecedented opportunities. By collecting and analyzing large amounts of transaction data, market trends, and supplier performance information, big data technology can reveal the deep-seated characteristics of an organization's spending patterns, thereby providing accurate data support for managing supplier relationships [3]. For example, big data can accurately calculate accurate information on return on investment, helping hotels conduct in-depth analyses of potential suppliers. This allows hotels to make more informed decisions. This analytical capability is not limited to the financial level, but can also be extended to multiple dimensions such as supplier reputation, product quality, and delivery speed, building a comprehensive and objective supplier evaluation system for hotels.

In the process of supplier evaluation and selection, the processing capacity of big data technology is particularly important. Due to the large number of suppliers and the variety of their evaluation and selection indicators, this process has become extremely complicated. To meet this challenge, hotels can learn from some advanced methods and tools, such as the fuzzy comprehensive evaluation method and analytical hierarchy process. In a study, the powerful processing capabilities of big data were utilized to evaluate and select suppliers using fuzzy comprehensive evaluation and analytic hierarchy process, which has been used as one of the evaluation factors [4]. These methods combine the advantages of big data technology and can more scientifically and objectively evaluate the comprehensive strength of suppliers, to select the most suitable partner for hotel needs.

However, relying solely on big data technology for supplier evaluation is not enough. The process of choosing the finest suppliers for the hotel supply chain is complicated since there are many suppliers and many ways to evaluate and choose them. Consequently, hotels may establish an information database that receives data from a variety of sources, both internal and external. These sources may include device networks or assets from the hotel's manufacturing business. Distribution and sales operations, as well as continuous monitoring of equipment and processes, may be made more efficient with the use of big data for more thorough analysis and integration of various datasets. The hotel will serve as the hub for a cooperative and effective supply chain ecosystem thanks to the use of cloud computing, new system and API technologies, and integration with contemporary big data applications and analysis packages, all of which will make data access and disclosure more intuitive [5].

4. Exploring the Path to Improving the Efficiency of Resource Allocation in Hotel Supply Chain

Accurate demand forecasting has always been a major challenge in hotel supply chain management [6]. Its complexity stems not only from the volatile market environment but also involves the unpredictability of consumer behavior. In this context, big data analysis technology provides new solutions for hotel supply chain management with its powerful data processing capabilities and insight capabilities. By tracking consumer loyalty, capturing demand signals, and analyzing optimal price data, big data technology provides hotels with unprecedented market insights, helping hotels grasp market dynamics more accurately and optimize supply chain management strategies.

However, despite the huge potential of big data analysis technology, hotels still face many challenges in the application process. The investment and configuration of advanced hardware and

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software as well as algorithm architecture are the primary difficulties [7]. In addition to helping hotels see patterns in the market and find out why things aren't working, big data technology can also help them anticipate how many guests they'll require and what amenities they'll want based on their past actions. As a result, this has the potential to inspire new ideas for hotel business services. In addition, big data analysis technology can also solve inventory management problems to a large extent. Big data can be integrated into the distribution of non-perishable products through business systems, which can widely improve operational efficiency and provide higher profitability. In supply chain management, the application of big data analysis technology brings many benefits. First, by continuously monitoring and analyzing operational data, hotel operations managers can promptly identify and solve potential bottleneck problems and improve operational efficiency. This ability to monitor and analyze real-time data enables hotels to adjust supply chain management strategies more flexibly to cope with market changes. Second, big data analysis technology helps hotels maximize sales and profits. Through the analysis of real-time data, hotel financial managers can have a deeper understanding of changes in profit margins, to formulate more reasonable pricing and promotion strategies. This data-driven decision-making method enables hotels to maintain profitability in the fierce market competition. In addition, big data analysis technology can also improve customer service satisfaction. Through access to real-time data and timely analysis, hotel operations managers can more accurately understand customer orders and taste needs, to adjust inventory levels and improve customer satisfaction. At the same time, big data analysis technology can also predict the peak or downturn of customer demand and seasonal trends, helping hotels to accurately plan inventory at different times, and ensuring that customers can get the products and services they need at any time.

Last but not least, logistics distribution management may be substantially improved with the use of big data analysis technologies. Massive data and gadget proliferation, pollution concerns, complex regulatory frameworks, shifting business models, shortages of skilled workers, and advances in infrastructure and technology have all contributed to a sea change in the logistics sector. Establishing common business processes and standardizing the structure and content of data exchange are of utmost importance in the hotel logistics industry. This will facilitate better communication and collaboration among various departments, such as hotel procurement, manufacturers, logistics companies, distributors, and retailers. Cost reduction via the elimination of surplus inventory (both temporary and in-transit), the proactive handling of incoming and outgoing events, and the pooling of assets is, nonetheless, of paramount importance in the modern supply chain environment. By combining logistics technologies like supply chain operation systems, transportation management systems, and internet of things (IoT) devices with big data analysis tools, hotels, logistics providers, and suppliers can form strategic alliances and share and access the massive amounts of data produced by the industry. The supply chain platform handles and inherits massive amounts of data generated by various internal and external systems, ensures that the data is validated and governed properly to boost its credibility, and gives hotels access to the data they need for self-service exploratory analysis and insights [8].

5. Conclusion

With the fast development of information technology, big data analysis technology has become an important way to solve hotel supply chain management problems. This paper aims to explore the existing structure of hotel supply chain management and point out the existing issues in the existing social hotel supply chain. On this basis, by demonstrating the basic and latest applications of big data analysis technology and database information systems in hotel supply chain management, this paper attempts to provide an effective path to solve these problems. Big data analysis technology plays an important role in the end-to-end supply chain. It can be applied to customer demand data, retailer data,

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and supplier data. Through development and improvement, it can solve the relationship problems between hotels and suppliers in hotel supply chain management, the distribution problems of perishable goods in inventory management, and the optimization management problems of logistics distribution. In the future, AI technology and big data analysis technology can be combined and applied to hotel supply chain management to improve the supply efficiency of hotels and reduce labor costs. For example: use AI to replace the hotel procurement department to make order requirements to suppliers. AI can replace the hotel's manpower to monitor the real-time production, shipment, and receipt of supplier goods by combining with database information systems and the Internet of Things (IoT). In addition, AI can accurately generate accurate order requirements by analyzing the efficiency of hotel items, the depreciation rate of items, and the order demand for the next quarter. Solve the supplier's product quality and logistics problems efficiently, and significantly reduce the hotel's labor cost expenditure in this department.

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