

공급망 재고관리시스템의 의사결정모형을 위한 시뮬레이션

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Simulation for the Decision-making Models of Supply Chain Inventory Management System

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요 약

본 연구의 의사결정지원 모형을 대상으로 한 시뮬레이션 결과에 의하면 맥주 산업의 조정을 기반으로 한 빅 데이터 협업 플랫폼 하에서 공급망 운영 조건을 동원하고, 공급망 직접 물류 재고는 상대적으로 안정적인 가치를 유지하며 재고가 없거나 심각한 부족도 발생하지 않는다. 따라서 전통적인 맥주 공급망 운영과 같은 재고 상황에서 맥주의 심각한 공급 부족으로 인해 체인 재고 수준 보고서로 인한 수요 정보 확장 상황을 피할 수 있다.

ABSTRACT

From the simulation results, under the collaborative platform of big data based on coordination of the beer industry to mobilize the supply chain operation condition, supply chain direct logistics inventory are in a relatively stable value, and there is no zero inventory or even a serious lack of beer in the stock situations like traditional beer supply chain operation, which avoid the situation of demand information expansion caused by chain inventory levels report because of the serious lack of supply.

키워드

빅데이터, 협업플랫폼, 시뮬레이션, 의사결정지원 모형

1. 서 론

We used the production and operation data of GZ Yanjing Beer Company (China) and used vensim 8.1.0 software for model analysis. Then we have the inventory of each logistics unit in the supply chain and simulated them.

From the simulation of using collaborative management, the system-related variables such as replenishment quantity, order quantity, replenishment quantity and wastage of retailers all experienced a sudden increase, while wholesalers and manufacturers in-

creased almost at the same time, and the increase range was nearly the same. The simultaneous occurrence is due to the adoption of collaborative management control and the accurate transmission of demand information to each node of the supply chain through the collaborative platform without any information delay. The reason for the consistent increase is that the collaborative platform accurately transmits the demand information to each segment of the supply chain, ensuring that the information is not expanded or distorted during the transmission process within the supply chain.

It can be found that the overall predictive management control with collaborative platform is lower than

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that without collaborative platform from the simulation results. The inventory of each node has an increasing trend in the absence of the traditional management strategy of collaborative management, which indicates that the use of collaborative inventory management control of supply chain is effective for the beer industry and can effectively inhibit the generation of bullwhip benefit.

The simulated fluctuations of retailers, wholesalers, and manufacturers adopting the supply chain collaborative inventory control system are relatively large because the collaborative platform predicts the inventory at each node of the supply chain. The collaborative platform provides the expected inventory. When the expected inventory is lower than the expected inventory, an ordering activity will take place, and when the expected inventory is higher, the ordering activity will not be taken. At the same time, we found that the expectation of inventory fluctuation is zero. In the long-term simulation, the inventory fluctuates above and below the expected inventory, but the fluctuation range tends to be stable.

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