

Optimizing Response Time in The Food Supply Chain: An Analysis of Factors and Strategies

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Abstract

The objective of this research is to gain a deeper understanding of the response time of the food supply chain by analyzing its various components and their interrelationships. Mathematical modeling languages, such as Performance Evaluation Process Algebra (PEPA), are employed to accurately describe the systems in question. A detailed flowchart model, outlining all supply chain operations from farm to consumer, is presented and simulated using PEPA. The results are then analyzed to evaluate the response time of the food supply chain and assess the performance of the PEPA model. In addition, the study also aims to investigate the advantages of using PEPA as a modeling language for complex supply chains and how the findings of this simulation and analysis can be leveraged to enhance the efficiency and effectiveness of the food supply chain. Furthermore, this paper also highlights the significance of response time in the food supply chain and its impact on the food industry as well as consumers.

Keywords: Food Supply Chain, PEPA, Response Time, Performance Evaluation