Research Papers Description

Paper 1

Title:Organizational Performance through Dairy Supply Chain Management Practices: A Winning Approach

Published year: 2020

Author: Rajeev Kumar

The implementation of Dairy Supply Chain Management (DSCM) practices is key to improving organizational performance in the dairy industry. By adopting these practices, companies can achieve cost savings, increased revenues, and reduced defects in dairy products, aligning with the goals of enhancing operational efficiency and profitability. A strong link exists between DSCM practices and organizational success, particularly in areas such as market share, return on assets, and sales growth.Key DSCM practices include Information and Communication Technology (ICT) for automation and improved communication across the supply chain, supplier relationship practices ensuring steady quality supply, and efficient manufacturing and inventory systems to meet market demand while minimizing waste. Well-managed warehousing and transportation systems also ensure timely product availability and quality. Additionally, Customer Relationship Management (CRM) practices improve customer satisfaction and loyalty by addressing their needs and concerns.These practices streamline dairy operations, enhance market competitiveness, and improve overall organizational performance. This aligns closely with the Milma Management System project, which automates key dairy supply chain processes, improving efficiency and communication among farmers, customers, and administrators. Through the integration of these practices, the project aims to optimize milk collection, order management, payments, stock tracking, and customer service, leading to greater operational success and growth in the dairy supply chain.

Paper 2

Title:Smart Contract-Based Agricultural Food Supply Chain Traceability

Published year: 2021

Author:: Shuangyin Liu

This paper addresses the challenges of tracking product safety and quality in agricultural food supply chains, particularly due to the complexity of these chains, multiple participants, long cycles, and communication barriers. Traditional centralized systems often face issues such as data distrust and inefficiencies in traceability. The paper proposes a framework that leverages blockchain technology, particularly through the use of consortiums and smart contracts, to improve traceability, data sharing, and transparency across the supply chain. By removing the

need for central intermediaries, this system enhances the integrity, reliability, and security of transaction records.The framework also integrates the InterPlanetary File System (IPFS) for securely storing environmental and crop growth data, with IPFS hashes stored in smart contracts to avoid blockchain storage overload and improve data security. This approach has been implemented in the Shanwei Lvfengyuan Modern Agricultural Development Co., Ltd., demonstrating successful features like disintermediation and the ability to trace agricultural product information via QR codes. While the system still has room for improvement, the proposed framework offers significant potential for improving agricultural product quality and safety traceability, providing valuable insights for enterprises looking to enhance their supply chain management.

Paper 3

Title:Predictable inventory management within dairy supply chain operations

Published year: 2023

Author:Rosario Huerta Soto,Edwin Ramirez Asís

This study focuses on enhancing the optimization strategies within the Dairy Supply Chain (DSC) by leveraging modern technologies such as machine learning (ML) and artificial intelligence (AI). As the dairy industry undergoes modernization, the use of ML helps improve inventory planning, reduces waste, and enhances quality across various components, ultimately lowering operational costs. The study examines existing DSC optimization approaches and aims to find further improvements in operational excellence.Following PRISMA standards for systematic reviews, the research identifies a shift from traditional mathematical modeling tools to AI and ML-based methods, which are becoming the preferred approach in optimizing DSC operations. The integration of cloud computing, shared databases, and software systems facilitates real-time data transmission between distributors, logistics companies, and retailers, streamlining the supply chain.The paper also addresses the environmental impact of the dairy industry, including greenhouse gas emissions and animal suffering, while recognizing the challenges smaller farms face in competing with larger, subsidized operations. The study provides valuable insights into optimization methods that could improve the efficiency of dairy processing and distribution, offering practical implications for better environmental and operational outcomes in the industry.