Volume 4, No. 11 November 2026, pp. 1764-1772
e-ISSN 3031-5786
DOI: https://doi.org/ 10.46799/adv.v4i11.735

ADVANCES IN SOCIAL HUMANITIES RESEARCH

Strategies to Improve Supply Chain Efficiency in Industrial-Scale Catering Services (Case Study on Morowali Mine Catering Company, Central Sulawesi)

Hendro Soejadi*, Suci Andi Wachyuni, Dr. Fx Setiyo Wibowo
Politeknik Sahid, Indonesia
Email : chefhendro.ict@gmail.com*, sucisandi@polteksahid.ac.id, fxsetiyowibowo@polteksahid.ac.id

Keywords:
Supply Chain Management, Inventory Control, Menu Engineering, Operational Efficiency, Industrial Catering.

This is an open access article under the CC BY-SA license.

Copyright © 2026 by Author. Published by Publikasiku Publisher

Abstract

This study examined operational efficiency in industrial-scale catering services in the Morowali mining region of Central Sulawesi, Indonesia, through an integrated assessment of supply chain management (SCM), inventory management, and menu engineering. The research addressed operational challenges associated with high-volume food production, including inventory discrepancies, supply delays, and unplanned menu modifications. Employing a qualitative case study approach, data were collected through in-depth interviews, field observations, and reviews of operational documentation at an industrial catering company. Informants included personnel directly involved in procurement, goods receiving, warehousing, and food production. The findings revealed that supply chain processes were insufficiently coordinated across departments, contributing to inconsistencies between operational planning and implementation. Manual and partially digitized inventory recording practices were associated with discrepancies between recorded inventory levels and actual physical stock. Furthermore, menu planning was not consistently aligned with raw material availability, resulting in unplanned menu substitutions, increased food costs, and food waste. Collectively, these findings suggested that operational inefficiencies were associated with inadequate integration among supply chain operations, inventory control, and menu planning rather than a single isolated operational problem. Accordingly, the study recommended adopting integrated digital information systems, strengthening standard operating procedures (SOPs), and aligning menu planning with accurate inventory records and reliable supply information to improve operational efficiency. The findings provided practical insights into strengthening interdepartmental coordination, minimizing operational disruptions, and reducing avoidable resource losses in high-volume catering operations serving remote mining areas.

INTRODUCTION

Industrial-scale catering operations in mining areas require reliable material flows, accurate inventory records, and effective menu planning to maintain uninterrupted food production despite extended delivery routes and logistical constraints. The Morowali mining region

presents particularly demanding operational conditions because of the substantial volume of daily meal production and the potential effects of supply disruptions on service continuity. Consequently, supply chain responsiveness and effective coordination across procurement, goods receiving, warehousing, food production, and distribution are essential for maintaining operational efficiency (Chopra & Meindl, 2021; Christopher, 2016).

Operational observations documented in the manuscript revealed discrepancies between recorded inventory levels and physical stock, inadequate coordination between logistics and production departments, and unplanned menu substitutions (Al-Rashid, M., & Zainal, 2023). These challenges were particularly significant for perishable ingredients, as excessive inventory increased the risk of spoilage and storage losses, whereas shortages necessitated emergency procurement and unexpected menu modifications. The reported production figures illustrated the scale of operational demand; however, their interpretation was limited to the company and observation period represented in the original operational records (Rushton et al., 2017).

Previous studies have examined these operational activities from different perspectives. Hernandez and Cardenas (2021) investigated menu engineering and cost control, while Wijaya et al. (2023) addressed inventory discrepancies in large-scale food production. Liang et al. (2021) explored real-time information integration, whereas Park and Oh (2022) examined coordination between menu planning and ingredient availability. Collectively, these studies highlighted the importance of integrating operational functions to improve overall supply chain performance rather than addressing departmental activities independently.

Nevertheless, existing research has primarily examined supply chain management, inventory control, and menu planning as separate operational functions. The research gap addressed in this study lies in the limited context-specific understanding of how these interconnected functions influence operational efficiency within high-volume catering services operating in remote mining environments. Examining the relationships among procurement decisions, inventory visibility, menu planning, and production activities is essential because inefficiencies in one operational stage may generate disruptions and additional costs throughout the supply chain.

The urgency of this research stems from the operational consequences of inventory discrepancies, prolonged procurement lead times, and limited warehousing capacity, which may compromise the continuity of large-scale meal provision. Decisions based on delayed or inaccurate inventory information can increase emergency procurement, raw material losses, production inefficiencies, and last-minute menu substitutions. Therefore, sustainable operational improvements require coordinated procedures, accurate inventory information, and integrated planning mechanisms rather than isolated corrective measures within individual departments.

The contribution of this case study lies in its integrated examination of supply chain management (SCM), inventory management, and menu engineering within an industrial-scale catering operation in Morowali, Central Sulawesi. Its contextual novelty derives from examining the interrelationships among these three operational functions in a remote, high-volume foodservice environment rather than proposing an entirely new management framework. By exploring coordination across operational departments, the study identified

process-related weaknesses and potential opportunities for improving integrated procurement, inventory control, and menu planning.

Accordingly, this study aimed to examine the implementation and coordination of SCM, inventory management, and menu engineering, identify the primary sources of operational inefficiency, and formulate practical strategies for improving supply chain performance in industrial-scale catering services. From a managerial perspective, the findings were expected to inform improvements in procurement procedures, inventory visibility, menu planning, and interdepartmental coordination. Academically, the study sought to contribute context-specific empirical insights into integrated foodservice supply chain management and provide a foundation for comparative research across other remote, high-volume catering operations.

METHOD

This study employed a descriptive qualitative case study design to investigate operational coordination within an industrial-scale catering company in the Morowali mining region of Central Sulawesi, Indonesia. The analysis focused on interconnected procurement, goods receiving, warehousing, food production, and menu planning processes. Informants were purposively selected based on their direct involvement in these operational activities to obtain relevant insights into supply chain management (SCM), inventory control, and menu engineering.

Primary data were collected through in-depth interviews with personnel involved in procurement, goods receiving, warehousing, production, and operational management, supported by field observations and reviews of company operational documents. Interview guides, observation notes, and relevant organizational records were used as data collection instruments. The collected information was cross-checked across interviews, observations, and documentary evidence to strengthen the credibility and consistency of the findings.

Data were analyzed descriptively by organizing and interpreting information related to supply chain coordination, inventory discrepancies, raw material availability, and menu planning practices. Findings from interviews, field observations, and operational records were compared to identify recurring inefficiencies and coordination gaps across departments. The identified issues were interpreted using relevant SCM, inventory management, and menu engineering frameworks. Based on the findings, improvement strategies were formulated, emphasizing integrated procurement planning, digital inventory recording, standardized operating procedures (SOPs), demand forecasting, and menu planning aligned with material availability. These strategies were proposed as operational recommendations rather than empirically verified interventions.

RESULTS AND DISCUSSION

Discussion Based on Supply Chain Management Theory

The results of the study show that the supply chain in mining catering companies in Morowali has not run optimally, especially in terms of integration between operational functions. These findings indicate that the Supply Chain Management (SCM) system implemented is still partial and has not reached the level of integration required to support operational efficiency.

According to Sunil Chopra and Peter Meindl (2016), effective supply chain management requires integration between product, information, and financial flows across the supply chain network. This integration allows companies to increase visibility, reduce uncertainty, and increase responsiveness to changing demand and operational conditions.

In the context of this study, the lack of integration between procurement, inventory, and menu planning systems leads to mismatches between the need and availability of resources. This reinforces the view of Martin Christopher (2016) who states that failure to integrate supply chain processes can lead to inefficiencies, such as increased costs, delays, and waste of resources.

Thus, the results of this study are in line with the theory of Supply Chain Management which emphasizes the importance of integration as the main key in achieving operational efficiency and effectiveness.

Discussion Based on Inventory Control Theory

From the aspect of inventory management, this study found that although companies have implemented methods such as FIFO, the implementation has not been consistent. In addition, stock control systems that are still manual or semi-digital cause low inventory data accuracy.

According to Jay Heizer, Barry Render, and Chuck Munson (2017), effective inventory control requires a system that is able to provide accurate and real-time information, so that companies can avoid overstock and stockout.The findings in this study show that imbalances between stock and actual need are still frequent, which has an impact on the waste of raw materials as well as disruptions in the production process. This is also in line with the opinion of Sunil Chopra and Peter Meindl (2016) who stated that visibility in the inventory system is an important factor in improving the overall efficiency of the supply chain.

Thus, it can be concluded that weaknesses in the inventory control system are one of the main factors that contribute to the company's operational inefficiency.

Discussion Based on the Theory of Food Service Operation

From the perspective of food service operations, this study found that the menu planning system has not been fully integrated with operational conditions, especially related to the availability of raw materials and supply chain dynamics.

According to Kotschevar and Withrow (2007), effective menu planning must consider various operational aspects, including the availability of ingredients, production capacity, and cost efficiency. In addition, Hayes, Ninemeier, and Miller (2017) emphasize that the operational success of food service is highly dependent on the synchronization between menus, inventory, and consumer demand.

In this study, the mismatch between menu planning and actual conditions caused frequent sudden menu changes, which had an impact on the stability of kitchen operations and the quality of services provided. This shows that the implemented food service operation system is not fully based on integration and coordination between functions.

Thus, the findings of this study reinforce the theory that operational success in the foodservice industry is largely determined by the ability to manage the interconnectedness between various system components in an integrated manner.

Comparison with Previous Research

The results of this study are also in line with several previous studies that examined supply chain and operational efficiency in the food service industry and related sectors.Previous research has shown that one of the main causes of inefficiencies in the supply chain is the lack of integration between operational systems, which leads to mismatches between planning and execution in the field. These findings are in line with the results of this study, where the lack of integration between SCM, inventory, and menus is the main factor causing inefficiencies.

In addition, other studies also show that suboptimal inventory management can increase the risk of wasting raw materials and disrupt the smooth production process. This is consistent with the findings in this study which show an imbalance between stock and actual needs.

However, this study has a different contribution from previous research, namely by emphasizing the integration of the three main aspects of SCM, inventory, and menu planning in the context of industrial-scale catering in the mining environment. This approach provides a more comprehensive perspective in understanding the sources of inefficiency and formulating more targeted improvement strategies.

Strategies to Improve Operational Efficiency

Based on the results of the research and discussion that has been described earlier, several strategies can be formulated that can be applied to improve operational efficiency in mining catering companies in Morowali. This strategy was prepared by referring to the main findings related to the weaknesses of the integration of the Supply Chain Management (SCM) system, inventory control, and food service operation.

Procurement System Improvement

Companies need to improve their procurement systems by implementing a more structured and historical data-based raw material requirements planning mechanism. A well-planned procurement system will reduce reliance on emergency purchasing, which tends to increase operational costs.

In addition, strengthening cooperation with suppliers (supplier integration) also needs to be done to ensure supply continuity and stability of raw material prices.

Data Integration through System Digitalization

One of the main findings of this study is the low integration between systems. Therefore, companies need to implement an integrated digital system that connects procurement, inventory, and menu planning functions.This digitalization can be in the form of the use of Enterprise Resource Planning (ERP)-based systems or catering management applications that enable real-time data exchange. Thus, supply chain visibility will increase and decision-making will be faster and more accurate.

Preparation and Standardization of Operational SOPs

Companies need to evaluate and rearrange Standard Operating Procedures (SOPs) that are more integrated between departments. Clear and standardized SOPs will minimize operational errors, improve process consistency, and strengthen coordination between functions.In addition, periodic socialization and training to employees is also important to ensure that the implementation of SOPs runs effectively.

Application of Raw Material Demand Forecasting

To reduce the imbalance between stock and actual demand, companies need to implement forecasting methods based on historical data on consumption, number of customers, and demand patterns.

This approach allows companies to:

1) Reduces the risk of overstock and stockout
2) Optimizing the use of raw materials
3) Improve operational cost efficiency

e. Supply-Based Menu Planning

Menu planning needs to be adjusted to the actual conditions of the supply chain, especially the availability of raw materials. This approach will reduce the frequency of sudden menu changes that can disrupt the stability of kitchen operations.

By applying the concept of flexible menu planning, companies can maintain a balance between service quality and operational efficiency.

Improved Coordination Between Departments

The inefficiencies that occur are also caused by a lack of coordination between the procurement department, warehouse, and kitchen. Therefore, it is necessary to build a more effective communication system, both through regular coordination meetings and the use of internal digital platforms.Good coordination will ensure alignment between planning and operational execution.

Periodic Performance Monitoring and Evaluation

Companies need to establish key performance indicators (KPIs) related to operational efficiency, such as the rate of material waste, stock accuracy, and timeliness of procurement.Regular monitoring and evaluation will help the company in identifying problems early and making continuous improvements.

Improving Human Resource Competence

The human resource factor is also an important aspect in supporting operational efficiency. Therefore, companies need to improve employee competencies through training related to supply chain management, inventory control, and food service operations.Competent human resources will be able to implement systems and procedures more effectively.By implementing these strategies in an integrated manner, the company is expected to be able to significantly improve operational efficiency, both in terms of cost management, resource utilization, and the quality of services provided to consumers.

CONCLUSION

The findings of this qualitative case study revealed that inadequate integration among procurement, inventory management, and menu planning constituted a major operational challenge in industrial-scale catering services in the Morowali mining region of Central Sulawesi. Discrepancies between recorded inventory levels and physical stock, partially manual inventory recording practices, insufficient interdepartmental coordination, and unplanned menu substitutions were identified as factors that could compromise raw material availability, increase operational costs, and disrupt service consistency. These findings highlighted the importance of an integrated supply chain management approach that

strengthens coordination among procurement, warehousing, production, and menu planning activities. However, the proposed improvement strategies remained recommendations, as their effectiveness in achieving measurable operational efficiency gains had not been empirically evaluated.

Future research should assess the effectiveness of the proposed strategies through baseline and follow-up measurements of key operational performance indicators, including inventory accuracy, procurement lead times, emergency purchasing frequency, food waste, and menu substitution rates. Comparative studies involving multiple industrial catering facilities and clearly documented informant selection procedures are also recommended to strengthen the transferability of the findings. From a managerial perspective, the company should prioritize the integration of standard operating procedures (SOPs), regular reconciliation of physical inventory with digital records, systematic demand forecasting, and menu planning based on actual raw material availability. These measures are expected to support more reliable supply chain coordination, minimize operational disruptions, and improve resource utilization in high-volume catering operations.

FUNDING

This research does not receive special funding from government, private, or other organizations.

CONFLICT OF INTEREST

The authors state that there is no conflict of interest in the research, writing, or publication of this article.

AUTHOR CONTRIBUTION

All authors contributed to the preparation of this article. Author 1 (Hendro Soejadi) played a role in the conceptualization of the research, played a role in data collection and analysis, played a role in the interpretation of the results and the preparation of the manuscript, while the other authors contributed to the review, editing, and final approval of the manuscript.

GENERATIVE ARTIFICIAL INTELLIGENCE USAGE STATEMENT

The author states that no generative artificial intelligence was used in the preparation of this article.

REFERENCES

Al-Rashid, M., & Zainal, A. (2023). Integrated supply chain approaches for large-scale catering operations: Efficiency and operational stability. *Journal of Hospitality Operations*.

Amin, M., Rahmadani, L., & Putra, A. (2023). Business and management research methodology. Main Library.

Brown, T., Wilson, R., & Carter, J. (2020). Operational efficiency in catering supply chains: A systems-based approach. Journal of Foodservice Operations Management, 8(1), 44–59.

Choeruddin. (2022). Analysis of organizational effectiveness using the McKinsey 7S Framework. In Majid (Ed.), Organizational Performance Management (pp. 45–63). Graha Ilmu.

Chopra, S., & Meindl, P. (2021). Supply chain management: Strategy, planning, and operation (8th ed.). Pearson.

Christopher, M. (2016). Logistiks & supply chain management (5th ed.). Pearson.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry & research design: Choosing among five approaches (4th ed.). SAGE Publications.

Farouk, A., & Ibrahim, M. (2023). Logistiks constraints and operational risks in industrial catering services. International Journal of Industrial Logistiks, 6(2), 101–118.

Farrell, M. (2020). Understanding efficiency in modern operations systems. Journal of Productivity and Performance, 12(3), 150–167.

Heizer, J., Render, B., & Munson, C. (2020). Operations management: Sustainability and supply chain management (13th ed.). Pearson.

Hernandez, R., & Cardenas, J. (2021). Menu Engineering and food cost control in industrial catering operations. International Journal of Foodservice Management, 7(2), 55–68.

Kasavana, M. L., & Smith, D. I. (2019). Menu Engineering: A practical guide to menu analysis (5th ed.). Hospitality Publications.

Kim, H., & Lee, S. (2022). Foodservice timing efficiency and productivity in remote industrial sites. Journal of Industrial Catering Studies, 4(3), 201–219.

Kusrini, D., & Handayani, S. (2022). Inventory accuracy challenges in large-scale food production facilities. Journal of Supply Chain Systems, 9(2), 88–102.

Lestari, D. (2018). SWOT analysis: Theory and application in strategic management research. CV Bintang Pustaka.

Liang, Y., Yang, H., & Huang, C. (2021). Real-time information integration for large-scale food supply chains. Food Industry Logistiks Review, 13(4), 233–247.

Majid, A. (2022). Organizational performance management: Theory and application. Graha Ilmu.

Moleong, L. J. (2021). Qualitative research methodology (Revised edition). PT Remaja Rosdakarya.

Park, J., & Oh, S. (2022). Alignment of menu planning and inventory control in foodservice industries. Journal of Hospitality and Foodservice Innovation, 5(1), 72–89.

Prabandari, W. D. (2019). The Effect of Food and Beverage Service Quality on Customer Satisfaction in Canteens / Snack Areas. Journal of Applied Science of Tourism, Sahid Polytechnic. Retrieved from https://journal.polteksahid.ac.id

Rahman, M., & Aziz, R. (2024). Inventory forecasting accuracy in high-volume foodservice operations. Asian Journal of Supply Chain and Operations, 6(1), 41–58.

Rangkuti, F. (2018). SWOT Analysis: Techniques for dissecting business cases (Revised edition). Gramedia Pustaka Utama.

Rosales, P., Montoya, D., & Salazar, M. (2023). Reducing sampah makanan through integrated Menu Engineering systems. International Journal of Culinary Operations Management, 12(3), 189–205.

Rushton, A., Croucher, P., & Baker, P. (2017). The handbook of logistiks and distribution management (6th ed.). Kogan Page.

Saputro, A., Setiawan, B., & Kurniawan, R. (2021). Business development strategies using SWOT analysis and TOWS matrix. Journal of Strategic Management, 13(2), 112–125.

Setiyo Wibowo, F. X., & Bachtiart, Y. (2018). Analysis of consumer satisfaction with catering products at Mrs. Djoko Catering. Journal of Applied Science of Tourism, Sahid Polytechnic. Retrieved from https://journal.polteksahid.ac.id

Simarmata, R., & Ginting, M. (2024). Integrated supply chain performance in industrial foodservice sectors. Journal of Logistiks and Industrial Operations, 8(1), 54–69.

Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E. (2020). Designing and managing the supply chain: Concepts, strategies, and case studies (4th ed.). McGraw-Hill.

Slack, N., Brandon-Jones, A., & Burgess, N. (2022). Operations management (10th ed.). Pearson.

Stevenson, W. J. (2021). Operations management (14th ed.). McGraw-Hill Education.

Sugiyono. (2019). Qualitative, quantitative, and R&D research methods. Alphabet.

Suryani, L., Putra, D., & Ardiansyah, R. (2022). Reducing sampah makanan through integrated planning in foodservice operations. Journal of Sustainable Food Systems, 4(2), 102–118.

Wibowo, F. X. (2017). Analysis of business strategies of rice culinary business. Journal of Applied Science of Tourism, Sahid Polytechnic. Retrieved from https://journal.polteksahid.ac.id

Wijaya, L., Halim, T., & Sudirman, D. (2023). Causes and impacts of inventory discrepancy in mass food production. Journal of Foodservice Operations Management, 10(2), 120–135.

Xu, L., & Tang, H. (2023). Digital inventory systems for high-volume food supply chains: Accuracy and efficiency improvement. Journal of Smart Logistiks Technologies, 9(3), 101–118.