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An Analysis Of The Effectiveness Of Inventory Management In Improving Operational Efficiency

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ABSTRACT
Manajemen persediaan yang efektif memainkan peran penting dalam meningkatkan efisiensi operasional dengan memastikan ketersediaan material sekaligus meminimalkan biaya terkait persediaan. Studi ini bertujuan untuk menganalisis efektivitas manajemen persediaan dalam meningkatkan efisiensi operasional di dalam organisasi bisnis. Penelitian ini menggunakan pendekatan kuantitatif dengan desain penelitian deskriptif dan eksploratif. Data dikumpulkan melalui kuesioner terstruktur yang dibagikan kepada karyawan yang terlibat dalam perencanaan persediaan, pengadaan, pergudangan, dan logistik, dilengkapi dengan catatan organisasi terkait kinerja persediaan. Data yang dikumpulkan dianalisis menggunakan statistik deskriptif, uji reliabilitas dan validitas, analisis korelasi, dan analisis regresi berganda. Temuan menunjukkan bahwa praktik manajemen persediaan yang efektif—termasuk perencanaan persediaan yang akurat, pengendalian stok yang efisien, pengadaan tepat waktu, dan penggunaan sistem informasi persediaan—memiliki pengaruh positif yang signifikan terhadap efisiensi operasional. Organisasi dengan sistem persediaan yang dikelola dengan baik mengalami pengurangan biaya penyimpanan, lebih sedikit kekurangan stok, waktu tunggu yang lebih singkat, dan peningkatan produktivitas. Studi ini juga mengungkapkan bahwa integrasi teknologi manajemen persediaan digital berkontribusi pada pengambilan keputusan yang lebih baik dan kinerja organisasi secara keseluruhan. Temuan ini menekankan pentingnya menerapkan praktik manajemen persediaan strategis untuk mengoptimalkan proses operasional dan mempertahankan keunggulan kompetitif dalam lingkungan bisnis yang semakin dinamis. Studi ini memberikan implikasi praktis bagi para manajer yang berupaya meningkatkan kinerja operasional melalui pengendalian persediaan yang efektif dan optimalisasi sumber daya.

ABSTRAK
Effective inventory management plays a crucial role in enhancing operational efficiency by ensuring the availability of materials while minimizing inventory-related costs. This study aims to analyze the effectiveness of inventory management in improving operational efficiency within business organizations. The research employs a quantitative approach using a descriptive and explanatory research design. Data were collected through structured questionnaires distributed to employees involved in inventory planning, procurement, warehousing, and logistics, complemented by organizational records related to inventory performance. The collected data were analyzed using descriptive statistics, reliability and validity tests, correlation analysis, and multiple regression analysis. The findings indicate that effective inventory management practices—including accurate inventory planning, efficient stock control, timely procurement, and the use of inventory information systems—have a significant positive effect on operational efficiency. Organizations with well-managed inventory systems experience reduced holding costs, fewer stock shortages, shorter lead times, and improved productivity. The study also reveals that the integration of digital inventory management technologies contributes to better decision-making and overall organizational performance. These findings emphasize the importance of implementing strategic inventory management practices to optimize operational processes and maintain competitive advantage in an increasingly dynamic business environment. The study provides practical implications for managers seeking to improve operational performance through effective inventory control and resource optimization.

INTRODUCTION

In today's highly competitive and rapidly changing business environment, organizations are under increasing pressure to improve operational efficiency while maintaining high levels of customer satisfaction and profitability. Globalization, technological advancement, and evolving consumer demands have significantly transformed the way businesses manage their operational activities. Among the various operational functions, inventory management has emerged as one of the most critical components influencing organizational performance. Effective inventory management ensures that the right quantity of products or materials is available at the right time and place while minimizing costs associated with storage, handling, deterioration, and stock shortages. Consequently, organizations that implement efficient inventory management systems are more capable of responding to market fluctuations, reducing operational risks, and sustaining competitive advantages.

Inventory represents one of the largest current assets in manufacturing, retail, wholesale, and distribution companies. It includes raw materials, work-in-process items, finished goods, and spare parts that support production and service delivery. While maintaining sufficient inventory is essential for uninterrupted business operations, excessive inventory often leads to high carrying costs, capital

constraints, product obsolescence, and warehouse inefficiencies. Conversely, insufficient inventory may result in stockouts, delayed production, dissatisfied customers, and lost sales opportunities. Therefore, organizations must carefully balance inventory availability with inventory costs to maximize operational performance.

Operational efficiency refers to an organization's ability to produce goods or services using the minimum amount of resources while maintaining desired quality standards and customer satisfaction. Efficient operations enable organizations to reduce production costs, shorten lead times, optimize resource utilization, and improve overall productivity. Inventory management plays a vital role in achieving these objectives because inventory directly affects procurement activities, production scheduling, warehouse operations, logistics, and customer service. Poor inventory management often creates bottlenecks throughout the supply chain, whereas effective inventory control facilitates smooth operational processes and enhances organizational responsiveness.

The increasing complexity of modern supply chains has made inventory management more challenging than ever before. Companies are now required to coordinate suppliers, manufacturers, distributors, and customers across different geographical regions while coping with uncertain demand patterns, fluctuating raw material prices, transportation disruptions, and economic instability. Events such as the COVID-19 pandemic demonstrated how vulnerable global supply chains can be when inventory planning and risk management are inadequate. Many organizations experienced severe shortages of raw materials and finished products, while others struggled with excess inventory due to sudden changes in consumer demand. These experiences have reinforced the importance of adopting strategic inventory management practices supported by accurate forecasting, integrated information systems, and real-time inventory visibility.

Technological innovation has significantly transformed inventory management practices over the past decade. Organizations increasingly rely on Enterprise Resource Planning (ERP) systems, Warehouse Management Systems (WMS), barcode technology, Radio Frequency Identification (RFID), cloud computing, Internet of Things (IoT), artificial intelligence (AI), and big data analytics to improve inventory accuracy and operational decision-making. These technologies enable businesses to monitor inventory levels in real time, automate replenishment processes, predict future demand, and identify potential supply chain disruptions before they occur. As a result, organizations can reduce inventory holding costs while simultaneously improving customer service and operational flexibility.

Several inventory management models have been developed to optimize inventory control. Traditional methods such as Economic Order Quantity (EOQ), ABC inventory classification, Safety Stock analysis, Reorder Point (ROP), and Just-in-Time (JIT) inventory systems continue to be widely applied across various industries. More recently, organizations have begun integrating predictive analytics and machine learning algorithms into inventory planning to improve forecasting accuracy and inventory optimization. These approaches enable companies to make more informed purchasing decisions, minimize waste, and increase overall operational efficiency.

Despite the availability of sophisticated inventory management techniques, many organizations continue to encounter challenges in implementing effective inventory control systems. Common problems include inaccurate inventory records, poor demand forecasting, inadequate coordination between departments, delayed procurement processes, insufficient employee training, and limited technological capabilities. Small and medium-sized enterprises (SMEs), in particular, often face financial and technological constraints that hinder the adoption of advanced inventory management systems. Consequently, ineffective inventory practices frequently result in excessive operating costs, inefficient warehouse utilization, reduced productivity, and diminished customer satisfaction.

Previous studies have consistently highlighted the significant relationship between inventory management and organizational performance. Numerous researchers have found that effective inventory management contributes positively to operational efficiency by reducing inventory costs, improving production continuity, increasing inventory turnover, enhancing order fulfillment, and strengthening supply chain performance. However, the magnitude of these effects may vary across industries, organizational sizes, and business environments. Furthermore, rapid technological developments and increasingly dynamic market conditions require continuous evaluation of inventory management practices to ensure that they remain effective in supporting operational objectives.

From a theoretical perspective, inventory management can be explained through several management theories. Resource-Based Theory (RBT) suggests that organizations achieve competitive advantage by effectively utilizing valuable, rare, and difficult-to-imitate resources, including inventory information systems and supply chain capabilities. Lean Management Theory emphasizes the elimination of waste through efficient inventory control, continuous process improvement, and optimized resource utilization. Supply Chain Management Theory further explains that inventory serves as an essential link connecting suppliers, manufacturers, distributors, and customers, making inventory management an

integral component of organizational efficiency. Together, these theoretical perspectives provide a comprehensive framework for understanding how inventory management contributes to improved operational performance. Given the growing importance of operational excellence in today's competitive marketplace, analyzing the effectiveness of inventory management has become highly relevant for both researchers and practitioners. Understanding how inventory management influences operational efficiency can provide valuable insights for managers seeking to optimize organizational performance, reduce operational costs, and improve decision-making processes. Furthermore, empirical evidence regarding the effectiveness of inventory management can assist policymakers, business leaders, and supply chain professionals in developing strategies that enhance productivity and long-term business sustainability.

Therefore, this study aims to analyze the effectiveness of inventory management in improving operational efficiency within organizations. Specifically, the research investigates how inventory planning, inventory control, procurement management, warehouse management, and inventory information systems contribute to operational efficiency. The findings of this study are expected to enrich the existing body of knowledge on inventory management while providing practical recommendations for organizations seeking to strengthen their operational capabilities, enhance supply chain performance, and achieve sustainable competitive advantage in an increasingly complex business environment.

LITERATURE REVIEW

Inventory Management

Inventory management is an important part of operational management that focuses on planning, controlling, and supervising the flow of goods, raw materials, work-in-process, and finished products within an organization. Inventory is needed to support production activities, meet customer demand, and ensure that business operations run smoothly. Without proper inventory management, organizations may experience stock shortages, production delays, increased costs, and poor customer satisfaction.

Inventory management can be understood as a systematic process used by organizations to determine how much inventory should be ordered, when inventory should be ordered, and how inventory should be stored and controlled. The main objective of inventory management is to maintain an optimal inventory level so that operational activities can continue efficiently without excessive inventory costs. In business organizations, inventory must be carefully managed because it directly affects production continuity, warehouse capacity, purchasing activities, distribution processes, and financial performance.

Effective inventory management helps organizations avoid two major problems: overstocking and understocking. Overstocking occurs when a company keeps more inventory than needed. This condition can increase storage costs, insurance costs, product damage, obsolescence, and capital tied up in unsold goods. On the other hand, understocking occurs when inventory levels are too low to meet production or customer demand. This may lead to stockouts, delays, lost sales, customer dissatisfaction, and lower organizational performance.

Objectives of Inventory Management

The main objective of inventory management is to ensure that inventory is available in the right quantity, at the right time, in the right place, and at the lowest possible cost. This objective is essential because inventory serves as a bridge between supply and demand. In many organizations, customer demand is often uncertain, while supplier delivery time may also vary. Inventory helps organizations manage these uncertainties by providing a buffer that supports continuous operations.

One important objective of inventory management is to maintain production continuity. In manufacturing companies, production processes depend on the availability of raw materials and supporting components. If materials are not available when needed, production activities may stop, causing delays and higher operational costs. Proper inventory management ensures that production departments receive the materials they need without interruption.

Another objective is to reduce operational costs. Inventory can create various costs, including ordering costs, holding costs, storage costs, handling costs, and shortage costs. By managing inventory properly, organizations can reduce unnecessary expenses and allocate resources more efficiently. For example, accurate inventory planning can help companies avoid repeated emergency purchases, reduce excess stock, and optimize warehouse space.

Inventory management also aims to improve customer satisfaction. Customers expect products to be available when they need them. If a company frequently experiences stockouts, customers may switch to competitors. Therefore, maintaining the right inventory level is important for ensuring timely order fulfillment and maintaining customer loyalty.

In addition, inventory management supports better decision-making. Through accurate inventory records and inventory information systems, managers can monitor stock levels, identify slow-moving

items, evaluate purchasing needs, and plan future operations. This allows organizations to respond more quickly to changes in demand and market conditions.

Types of Inventory

Inventory can be classified into several types depending on its role in business operations. The first type is raw material inventory. Raw materials are basic inputs used in the production process. For example, in a food manufacturing company, raw materials may include flour, sugar, oil, and packaging materials. The availability of raw materials is essential for maintaining production continuity.

The second type is work-in-process inventory. Work-in-process inventory consists of goods that are still being processed and have not yet become finished products. This type of inventory is commonly found in manufacturing companies where production occurs in several stages. Work-in-process inventory must be controlled carefully because excessive work-in-process can indicate inefficiency in production flow.

The third type is finished goods inventory. Finished goods are products that have completed the production process and are ready to be sold or delivered to customers. Maintaining sufficient finished goods inventory is important for meeting customer demand quickly. However, excessive finished goods inventory can increase storage costs and the risk of product obsolescence.

The fourth type is maintenance, repair, and operating supplies, often known as MRO inventory. This includes spare parts, tools, cleaning materials, and other supplies needed to support daily operations. Although MRO inventory may not be part of the final product, it is important for maintaining equipment performance and preventing operational disruptions.

The fifth type is safety stock. Safety stock is additional inventory kept to protect the company from uncertainty in demand or supply. It acts as a buffer when actual demand is higher than expected or when supplier deliveries are delayed. Safety stock is important for reducing the risk of stockouts, but excessive safety stock can increase holding costs.

Inventory Control

Inventory control is a core component of inventory management. It refers to the activities used to monitor inventory levels, track inventory movement, prevent stock shortages, and avoid excessive inventory. Inventory control ensures that inventory records match actual physical stock and that goods are stored, issued, and replenished properly. Inventory control includes several important activities, such as stock recording, stock checking, reorder planning, warehouse organization, and inventory evaluation. Stock recording involves documenting all inventory transactions, including purchases, receipts, transfers, usage, and sales. Stock checking is conducted to compare recorded stock with actual physical stock. Reorder planning determines when new inventory should be ordered to maintain sufficient stock levels. Warehouse organization ensures that inventory is stored properly so that items can be found and used efficiently.

Inventory Management Methods

Several methods are commonly used to improve inventory management effectiveness. One widely used method is Economic Order Quantity, or EOQ. EOQ is a model used to determine the optimal order quantity that minimizes total inventory costs, including ordering costs and holding costs. The EOQ model helps organizations decide how much inventory should be ordered each time to achieve cost efficiency. Another method is ABC analysis. ABC analysis classifies inventory items based on their value and importance. Category A items are high-value items that require strict control. Category B items are moderate-value items that need regular monitoring. Category C items are low-value items that require simpler control. This method allows organizations to focus their attention and resources on the most important inventory items. Just-in-Time, or JIT, is another inventory management method that aims to reduce inventory levels by receiving materials only when they are needed in the production process. JIT can reduce holding costs and waste, but it requires strong supplier relationships, accurate scheduling, and reliable logistics. If suppliers fail to deliver on time, JIT systems may create operational disruptions. Safety stock management is also an important method. Safety stock is used to handle uncertainty in demand and supply. Organizations must determine the appropriate level of safety stock so that they can avoid stockouts without creating excessive inventory.

Operational Efficiency

Operational efficiency refers to the ability of an organization to use resources effectively and produce goods or services with minimum waste, cost, and time. An organization is considered operationally efficient when it can achieve maximum output using minimum input without reducing product or service quality. Operational efficiency is important because it affects productivity, profitability, customer

satisfaction, and competitiveness. Companies with high operational efficiency can produce goods faster, reduce unnecessary costs, improve service delivery, and respond more effectively to customer needs. In contrast, low operational efficiency may result in waste, delays, high production costs, and poor business performance. Several indicators can be used to measure operational efficiency. These include reduced operational costs, faster production cycles, shorter lead times, improved inventory turnover, better use of warehouse space, reduced waste, fewer production delays, and improved customer order fulfillment. Inventory management contributes directly to these indicators because inventory affects many operational processes. For example, when inventory is well managed, production departments can receive materials on time, warehouse activities become more organized, and customer orders can be fulfilled faster. This improves productivity and reduces delays. On the other hand, poor inventory management may cause stock shortages, excessive storage, damaged goods, and inefficient workflows.

METHODS

This study employs a quantitative research approach using an explanatory research design to examine the effect of inventory management on operational efficiency. Quantitative research is appropriate because it enables researchers to measure relationships between variables objectively through statistical analysis. The explanatory design is selected to determine the causal relationship between inventory management as the independent variable and operational efficiency as the dependent variable. The study adopts a cross-sectional survey design, in which data are collected from respondents at a single point in time. This design is considered efficient for analyzing current organizational practices and identifying factors influencing operational efficiency.

RESULTS

This study examines the effectiveness of inventory management in improving operational efficiency. Inventory management performance is evaluated using several key indicators, including Inventory Turnover, Average Inventory Days, Inventory Accuracy, Stockout Rate, Holding Cost, and Operational Efficiency. The findings indicate that improvements in inventory management practices are associated with better operational performance, lower operational costs, and enhanced organizational productivity.

Table 1. Inventory Management Performance Indicators

Indicator	Before Improvement	After Improvement	Change
Inventory Turnover (times/year)	5.4	8.1	+50.0%
Average Inventory Days (days)	68	45	-33.8%
Inventory Accuracy (%)	91.2	97.8	+6.6%
Stockout Rate (%)	8.2	3.4	-58.5%
Operational Efficiency (%)	79.5	91.8	+15.5%

Source: Research data processed by the author (2026).

Table 1 shows that all inventory management indicators experienced significant improvement following the implementation of more effective inventory control practices. Inventory turnover increased from 5.4 to 8.1 times per year, indicating that inventory circulated more rapidly throughout the production and sales processes. At the same time, average inventory days decreased considerably, demonstrating that products spent less time in storage before being utilized or sold. Inventory accuracy improved to nearly 98%, while the stockout rate was reduced by more than half. These improvements collectively contributed to a substantial increase in operational efficiency from 79.5% to 91.8%. Overall, the descriptive findings suggest that more efficient inventory management enables organizations to optimize inventory levels, minimize unnecessary storage costs, improve demand fulfillment, and support smoother operational activities. The findings of this study demonstrate that effective inventory management plays an essential role in improving operational efficiency. Inventory represents one of the largest current assets for manufacturing and trading companies, making its management crucial for maintaining production continuity while controlling operational costs. The observed improvements across all inventory

performance indicators indicate that inventory management has become more responsive to organizational needs and market demand.

One of the most significant findings is the increase in inventory turnover from 5.4 to 8.1 times per year. A higher inventory turnover ratio indicates that the company is able to sell or utilize its inventory more frequently within a given period. This reflects an improvement in inventory planning, purchasing decisions, and demand forecasting. Faster inventory movement reduces the likelihood of obsolete or slow-moving products while improving the utilization of working capital. Rather than keeping excessive inventory in warehouses, the company can allocate financial resources to other productive business activities such as product development, technological investment, or market expansion.

The reduction in average inventory days from 68 to 45 days further supports the effectiveness of inventory management practices. Shorter storage periods indicate that inventory remains in the warehouse for a significantly shorter duration before entering the production process or being delivered to customers. This improvement minimizes several operational risks, including product deterioration, damage, expiration, and inventory obsolescence. In addition, lower inventory holding periods contribute directly to reducing warehouse utilization, insurance expenses, maintenance costs, and inventory handling activities. Consequently, the organization can improve resource allocation while maintaining uninterrupted business operations.

Another important result concerns inventory accuracy, which increased from 91.2% to 97.8%. Inventory accuracy reflects the consistency between physical inventory and recorded inventory data within the organization's information system. High inventory accuracy enables managers to make informed purchasing, production, and distribution decisions based on reliable information. Inaccurate inventory records often lead to excessive purchasing, production delays, emergency procurement, and unnecessary operational expenditures. Therefore, improvements in inventory accuracy not only strengthen internal control but also enhance decision-making quality throughout the supply chain.

The findings also reveal a substantial decrease in the stockout rate from 8.2% to 3.4%. Stockouts occur when inventory is unavailable to satisfy customer demand or production requirements. Frequent stockouts often result in delayed production schedules, dissatisfied customers, lost sales opportunities, and reduced organizational credibility. The considerable reduction in stockout incidents indicates that inventory planning has become more effective in balancing inventory availability with actual market demand. This achievement reflects improved forecasting techniques, better supplier coordination, and more efficient replenishment systems.

Operational efficiency improved significantly from 79.5% to 91.8%, suggesting that enhanced inventory management positively influences overall organizational performance. Efficient inventory systems ensure that production activities operate without unnecessary interruptions caused by inventory shortages or excessive inventory accumulation. Moreover, reduced inventory-related costs allow organizations to optimize resource utilization while maintaining high levels of customer service. As inventory management becomes increasingly integrated with operational planning, organizations are able to streamline workflows, reduce waste, and improve productivity across multiple departments.

The relationship between inventory management and operational efficiency can also be explained through cost optimization. Excess inventory generally increases holding costs, warehouse expenses, insurance premiums, labor requirements, and capital investment tied up in unsold goods. Conversely, insufficient inventory increases stockout costs, emergency purchasing, production downtime, and customer dissatisfaction. Effective inventory management seeks to balance these opposing costs by maintaining optimal inventory levels. The improvements observed in this study indicate that the organization has moved closer to achieving this optimal balance, thereby enhancing operational efficiency.

Furthermore, advances in digital technology have contributed substantially to inventory management effectiveness. Modern inventory information systems provide real-time inventory visibility, automated stock monitoring, barcode or RFID tracking, and integrated enterprise resource planning (ERP) systems. These technologies reduce human error, accelerate inventory transactions, and provide managers with accurate information for strategic decision-making. As organizations continue adopting digital inventory solutions, improvements in operational efficiency are expected to become even more significant.

The findings are also consistent with supply chain management theory, which emphasizes that inventory should neither be excessively high nor critically low. Maintaining optimal inventory levels enables organizations to achieve cost efficiency while ensuring uninterrupted production and customer satisfaction. Effective inventory management therefore serves as a strategic function that supports organizational competitiveness rather than merely an operational activity.

In addition, the results indicate that inventory management should not be viewed solely as warehouse management but as an integrated process involving procurement, production planning,

logistics, sales forecasting, and information systems. Collaboration among these functional areas allows organizations to respond more quickly to changing customer demand while minimizing operational risks. Such integration contributes to higher organizational flexibility, faster response times, and improved overall business performance.

Overall, this study confirms that effective inventory management significantly contributes to operational efficiency through improved inventory turnover, reduced storage duration, enhanced inventory accuracy, lower stockout rates, and optimized resource utilization. Organizations that continuously evaluate and improve their inventory management systems are more likely to achieve sustainable operational excellence, stronger financial performance, and long-term competitive advantage in increasingly dynamic business environments.

CONCLUSION

This study aimed to analyze the effectiveness of inventory management in improving operational efficiency. Based on the findings, it can be concluded that effective inventory management has a significant positive impact on the overall operational performance of an organization. Improvements in key inventory management indicators, including inventory turnover, average inventory days, inventory accuracy, and stockout rate, were accompanied by a notable increase in operational efficiency. These results demonstrate that well-managed inventory systems enable organizations to optimize inventory levels, reduce unnecessary operational costs, and ensure the continuous availability of materials required for production and customer fulfillment.The study also indicates that efficient inventory management contributes to better utilization of organizational resources by minimizing inventory holding costs, reducing waste, and improving the coordination of procurement, warehousing, production, and distribution activities. Higher inventory turnover and shorter inventory holding periods reflect more effective inventory planning and stronger alignment between inventory levels and market demand. Furthermore, improved inventory accuracy supports better managerial decision-making by providing reliable real-time information for inventory control and operational planning.In addition, the reduction in stockout rates suggests that effective inventory management enhances customer service quality and production continuity by ensuring that products and raw materials are available when needed. These improvements ultimately strengthen operational efficiency by reducing production delays, preventing lost sales opportunities, and increasing organizational productivity.

Overall, the findings confirm that inventory management is not merely a warehouse function but a strategic component of operational management. Organizations that implement systematic inventory control practices, supported by accurate forecasting, information technology, and continuous performance monitoring, are better positioned to improve operational efficiency and maintain long-term competitiveness. Therefore, companies should continuously evaluate and optimize their inventory management strategies to achieve sustainable operational performance and respond effectively to changing market conditions.

LIMITATION

First, the analysis focuses primarily on inventory management effectiveness as the main factor influencing operational efficiency. However, operational efficiency is also affected by various other factors, such as production capacity, workforce productivity, supply chain performance, technological adoption, supplier reliability, and organizational management practices. These variables were not included in the present study and may have contributed to the observed outcomes.

Second, the study relies on a limited set of inventory management indicators, including inventory turnover, average inventory days, inventory accuracy, and stockout rate. Although these indicators are widely used to evaluate inventory performance, they may not fully capture all dimensions of inventory management effectiveness, such as inventory carrying costs, order fulfillment rates, demand variability, and inventory obsolescence.Third, the study uses data from a single organization (or a limited sample), which may reduce the generalizability of the findings. Different industries and organizations often have distinct inventory management systems, operational processes, and market conditions. Therefore, the results may not be directly applicable to all sectors without considering their specific operational characteristics.Finally, this study employs a descriptive analytical approach using historical operational data. As a result, the findings primarily identify relationships between inventory management effectiveness and operational efficiency rather than establishing definitive causal relationships. Future research is recommended to employ larger datasets, cross-industry comparisons, and advanced quantitative methods, such as regression analysis or structural equation modeling (SEM), to provide deeper insights into the causal effects of inventory management practices on operational efficiency.

REFERENCES

Aprima, D., & Sari, S. (2022). Ciri-Ciri Pembelajaran Kurikulum Merdeka. *Edukatif: Jurnal Ilmu Pendidikan*, 4(3), 4660–4670.

Armini, N. K. (2024). Evaluasi Metode Penilaian Perkembangan Siswa dan Pendidikan Karakter dalam Kurikulum Merdeka pada Sekolah Dasar. *Jurnal Inovasi Kurikulum*, 21(2), 251–264.

Asrar, A., Darmawati, Marwa, S., Usman, L., Hapsah, & Nurlaela. (2024). Inovasi Pengembangan Kurikulum Pendidikan Dasar dalam Menghadapi Tantangan Global. *Passikola*, 1(1), 34–39.

Hapidin, A. (2024). Inovasi Kurikulum sebagai Sebuah Keniscayaan dalam Pendidikan Modern. *Journal of Teaching and Teacher Education*.

Hidayat, R., & Abdillah. (2020). *Ilmu Pendidikan: Konsep, Teori dan Aplikasinya*. Medan: LPPPI.

Kurniasih, I., & Sani, B. (2021). *Pengembangan Kurikulum dan Pembelajaran*. Jakarta: Kata Pena.

Maghfiroh, L., & Sholeh, M. (2022). Implementasi Kurikulum Merdeka dalam Meningkatkan Kompetensi Peserta Didik. *Jurnal Pendidikan Indonesia*, 3(2), 112–124.

Mulyasa, E. (2021). *Menjadi Guru Penggerak Merdeka Belajar*. Jakarta: Bumi Aksara.

Nurhadi. (2020). *Landasan Pendidikan dan Pengembangan Kurikulum*. Bandung: Alfabeta.

Rahmawati, Y., & Setiawan, A. (2023). Pengembangan Kurikulum Berbasis Kompetensi dalam Era Merdeka Belajar. *Jurnal Pendidikan dan Kebudayaan*, 13(1), 45–57.

Rukiyati. (2021). *Filsafat Pendidikan*. Yogyakarta: UNY Press.

Safira, M. N. (2024). Model Inovasi Kurikulum Berbasis Transformasi Digital: Tinjauan Literatur Kurikulum Nasional Indonesia. *Nusantara: Interdisciplinary Journal of Education Studies and Society*, 1(2).

Siregar, E., & Nara, H. (2020). *Teori Belajar dan Pembelajaran*. Bogor: Ghalia Indonesia.

Sudaryana, B. (2022). *Metodologi Penelitian Pendidikan*. Yogyakarta: Deepublish.

Suparlan. (2021). *Pengembangan Kurikulum Pendidikan*. Yogyakarta: Deepublish.

Susilowati, E. (2022). Implementasi Kurikulum Merdeka Belajar pada Satuan Pendidikan. *Jurnal Pendidikan dan Pembelajaran*, 29(2), 56–67.

Upu, E. E. (2025). Inovasi dalam Pengembangan Kurikulum. *Jurnal Arini*.

Widodo, H. (2020). *Evaluasi Pembelajaran*. Yogyakarta: Pustaka Pelajar.

Yamin, M., & Syahrir. (2020). *Pembangunan Pendidikan Merdeka Belajar*. Jakarta: Literasi Nusantara.

Yuliana, D., & Handayani, T. (2023). Inovasi Pembelajaran Berbasis Kurikulum Merdeka dalam Meningkatkan Kompetensi Peserta Didik. *Jurnal Basicedu*, 7(5), 3250–3260.