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Strategies for Improving Inventory Turnover at PT PK Manufacturing Indonesia

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Abstract: The objective of this study is to examine the factors influencing inventory turnover at PT PK Manufacturing Indonesia and to develop methods for improving inventory management efficiency. This research employs a qualitative approach, incorporating observations, interviews, and document analysis conducted at the research site, which includes the company's warehouse and production facilities. The study aims to provide in-depth insights into the factors affecting inventory turnover and offer strategic recommendations for optimizing inventory management. Ultimately, this research will contribute to strategic management studies by presenting an effective approach to inventory management. The findings of this study are expected to benefit PT PK Manufacturing Indonesia and serve as a guideline for other manufacturing companies facing inventory turnover challenges.

Keyword: Inventory Management, Inventory Turnover, Supply Chain Efficiency, Inventory Optimization, Operational Efficiency.

INTRODUCTION

Inventory management plays a vital role in manufacturing operations, influencing efficiency, cost control, and financial performance. Amidst increasing industry competition and fluctuating customer demand, optimizing inventory turnover is essential for maintaining a company's competitiveness. Inventory, as a component of current assets, is continuously acquired, processed, and offered to customers (Astuti & Satiman, 2024). Effective inventory management ensures companies maintain adequate stock levels while minimizing holding costs, which in turn improves cash flow and profitability (Joseph et al., 2023).

PT PK Manufacturing Indonesia has been experiencing inefficiencies in inventory turnover, as indicated by its inventory turnover ratio from 2021 to 2023. The company's inventory turnover ratio was relatively low at the beginning of 2021 and showed only slight improvement by the end of the year. However, by the third quarter of 2022, the ratio declined again and continued to drop until the end of 2023, leading to excessive stock accumulation. As a result, the company had to record inventory impairment losses amounting to USD 16,044 in 2021, USD 63,434 in 2022, and USD 28,762 in 2023**.** The high impairment losses indicate

inefficiencies in inventory management, affecting the company's financial statements by reducing asset values on the balance sheet and decreasing net income on the income statement.

Several key issues contribute to PT PK Manufacturing Indonesia's poor inventory turnover. First, the company's inventory management system is ineffective due to a lack of integration with production processes, leading to manual errors, procurement delays, and inaccurate demand forecasting. Second, an inefficient supply chain results in delays in raw material deliveries and overproduction, causing excessive inventory levels. Third, the lack of employee training in inventory management leads to inefficient handling and forecasting, further exacerbating the problem (Maulani et al., 2024). These issues align with previous studies, which emphasize that poor inventory control leads to prolonged stockholding periods, ultimately reducing operational efficiency (Hamzah et al., 2021).

To address these challenges, this study aims to analyze the factors affecting inventory turnover at PT PK Manufacturing Indonesia and propose strategies to optimize inventory management. Supporting theories highlight that effective procurement policies enhance supply chain performance and inventory turnover (Chen & Paulraj, 2004). However, excessively rigid procurement policies can limit flexibility and innovation, negatively impacting inventory efficiency (Van der Vorst & Beulens, 2002).

By identifying weaknesses in PT PK Manufacturing Indonesia's inventory management and providing practical recommendations, this research contributes to improving the company's operational efficiency and financial stability. The findings can also serve as a reference for other manufacturing firms facing similar inventory management challenges.

METHOD

This study adopts a qualitative research approach with an interpretivist paradigm, utilizing a case study design to examine inventory turnover at PT. PK Manufacturing Indonesia (Yin, 2018). The research explores inventory management practices, policies, and challenges by engaging directly with managers, procurement staff, warehouse employees, and supplier interactions. Conducted over one month at the company's warehouse and production facilities, the study focuses on procurement, storage, and distribution while considering organizational culture, structure, and external market conditions that influence inventory management (Merriam & Tisdell, 2016).

Data collection involves in-depth interviews, direct observations, and document analysis to ensure a comprehensive understanding of inventory turnover dynamics (Creswell & Poth, 2018). Primary data sources include interviews with key personnel and real-time observations of inventory activities, while secondary data consists of internal company documents such as procurement policies and performance reports, along with academic literature on inventory management (Patton, 2015). Research instruments include structured and semi-structured interview guidelines, observation checklists, and document analysis frameworks to systematically gather relevant insights (Flick, 2018).

The collected data is analyzed using thematic and interpretive analysis techniques to identify key patterns and assess the impact of structural and policy-related factors on inventory turnover (Braun & Clarke, 2006). Triangulation of multiple data sources enhances the credibility of findings (Denzin & Lincoln, 2018), while ethical principles such as informed consent, confidentiality, and transparency are strictly upheld (Bryman, 2016). The study ultimately aims to provide strategic recommendations for improving inventory management efficiency at PT. PK Manufacturing Indonesia.

RESULTS AND DISCUSSION

This study presents an in-depth analysis of inventory turnover management at PT. PK Manufacturing Indonesia. Data were collected through a triangulation approach, combining

interviews, direct observations, and document analysis to enhance the validity and reliability of the findings (Denzin & Lincoln, 2018). The analysis identifies critical challenges related to inventory control, procurement efficiency, and system integration, followed by strategic recommendations for improvement.

The study gathered data from interviews with five key informants from the Purchasing, Production Planning and Inventory Control (PPIC), and Accounting departments. Observations in warehouse and production areas examined the distribution process, which relies on PRONES and INFOR systems for inventory tracking. Document analysis included procurement procedures, reorder point policies, and work instructions for receiving, storing, and distributing inventory. This comprehensive approach ensures that inventory control aligns with established best practices (Yin, 2018).

PT. PK Manufacturing Indonesia employs the Reorder Point and Material Requirements Planning (MRP) methods to maintain optimal stock levels (Vollmann, Berry, Whybark, & Jacobs, 2005). The minimum stock ratio is set at 2.5 times daily production needs, and procurement is triggered when inventory falls below this threshold. However, fluctuations in sales forecasts frequently lead to stock imbalances, a common challenge in demand-driven supply chains (Chopra & Meindl, 2022). Purchase Orders (POs) are generated based on MRP and supported by Delivery Schedules, yet suppliers often impose their own scheduling policies, causing delays. The lack of a standardized Standard Operating Procedure (SOP) for supplier order scheduling results in inconsistent procurement practices. Developing a comprehensive SOP and conducting regular supplier performance evaluations are necessary to enhance procurement efficiency and mitigate supply chain risks (Christopher, 2016).

The First In, First Out (FIFO) method is employed to ensure that older raw materials are utilized first, reducing waste and improving stock rotation efficiency (Waters, 2019). The Work Order (WO) and Kanban Board systems help regulate material flow to maintain smooth production schedules. While PRONES is still used for warehouse stock recording, INFOR is being implemented to improve data accuracy. However, inventory discrepancies of 5.09% indicate challenges in integrating the new system, which aligns with prior findings that ERP transitions often face accuracy issues in the early stages (Monk & Wagner, 2013). The company should accelerate ERP adoption, provide targeted employee training, and resolve technical integration issues to improve inventory tracking.

The transition from PRONES to ERP INFOR is intended to enhance data integration across departments. However, manual stock recording by subcontractors results in inconsistent inventory reports. This issue aligns with prior research indicating that reliance on manual data entry increases the risk of human error in inventory control (Gunasekaran, Patel, & Tirtiroglu, 2001). Stock data mismatches cause delays in procurement decisions and production planning, as weekly stock recording by subcontractors fails to provide accurate daily updates. To improve accuracy, the company should implement real-time stock recording, improve cross-departmental coordination, and optimize the 4M approach (Man, Machine, Material, Method) to enhance production flexibility (Shingo, 1989).

Several key challenges were identified in production planning and inventory control. Uncertainty in raw material supply arises from dependence on a single supplier, while stock imbalances result from sudden changes in sales forecasts, an issue widely recognized in supply chain variability management (Fisher, 1997). Inaccurate inventory data, particularly from subcontractors relying on manual records, further complicates inventory management. Lack of integration in inventory recording also delays procurement decisions, reinforcing the importance of real-time inventory tracking (Jonsson & Mattsson, 2008). To mitigate these risks, the company should explore alternative suppliers, implement automated inventory monitoring, and enhance data integration across systems.

Both internal and external factors influence inventory turnover. Internally, ineffective stock control planning arises due to the incomplete digitalization of inventory records. Production capacity constraints and weak interdepartmental coordination further contribute to stock imbalances. Externally, supplier reliability issues, fluctuations in raw material prices, and shifts in customer demand impact procurement and inventory planning, mirroring global trends in supply chain disruptions (Ivanov, Dolgui, Sokolov, Ivanova, & Liu, 2016). To address these challenges, PT. PK Manufacturing Indonesia must enhance production planning methods, improve supplier diversification, and develop a more responsive inventory strategy.

To enhance inventory turnover, several strategies should be implemented. Accelerating the transition from PRONES to ERP INFOR will improve data accuracy and real-time stock monitoring, aligning with best practices in digital transformation (Kumar, Singh, & Shankar, 2020). Diversifying suppliers will reduce supply chain risks and avoid excessive reliance on a single vendor. Implementing adaptive procurement strategies, such as adjusting safety stock levels based on sales forecast fluctuations, will also help maintain balance (Simchi-Levi, Kaminsky, & Simchi-Levi, 2021). Enhancing cross-departmental coordination will improve production planning, particularly in communicating Bill of Material (BOM) changes. Additionally, optimizing the Kanban-based Work Order (WO) system will prevent excessive stock accumulation and ensure smooth raw material distribution, a crucial aspect of lean manufacturing (Womack & Jones, 1996).

Despite adopting modern inventory management practices such as MRP, FIFO, and Kanban, PT. PK Manufacturing Indonesia continues to face challenges related to stock recording accuracy, supplier dependency, and fluctuating sales forecasts. Addressing these issues through better data integration, supplier diversification, and improved interdepartmental coordination is essential for achieving more efficient inventory turnover.

The implementation of Just in Time (JIT) has enabled raw materials to be delivered only when needed, reducing storage costs, which aligns with lean inventory principles (Ohno, 1988). ERP and IoT technologies facilitate real-time inventory tracking and supplier coordination, demonstrating the role of digital innovation in supply chain efficiency (Xu, Xu, & Li, 2018). Delivery schedules are arranged at least three weeks in advance to prevent supplier delays, and stock arrival is recorded in both PRONES and INFOR, improving data accuracy. Good Receiving procedures ensure that received goods match Purchase Orders (POs), minimizing discrepancies in stock records.

Optimizing inventory turnover also requires strict quality control measures. PT. PK Manufacturing Indonesia ensures that only high-quality raw materials are used, reducing defective products and minimizing return rates. Real-time stock monitoring prevents stockouts and overstocking, improving overall operational efficiency. Warehouse staff training is essential to support the transition from PRONES to INFOR, ensuring better stock accuracy and seamless system integration.

To evaluate inventory management effectiveness, several Key Performance Indicators (KPIs) are applied. Inventory accuracy audits are conducted with a tolerance limit of 2%–5% for stock discrepancies, consistent with industry standards (Chow, Heaver, & Henriksson, 1994). Monthly stocktaking audits verify inventory data accuracy, while JIT strategy implementation optimizes procurement and minimizes storage costs. Additionally, quarterly aging inventory evaluations help identify obsolete stock and prevent excessive accumulation. While significant improvements have been made, further departmental coordination and inventory tracking enhancements are required to achieve a more effective and efficient stock management system.

This results section provides a comprehensive analysis of PT. PK Manufacturing Indonesia's inventory turnover management. Findings highlight the need for improved data

integration, supplier diversification, and process optimization to enhance inventory efficiency and overall operational performance.

Discussion

PT. PK Manufacturing Indonesia implements the Reorder Point and Material Requirements Planning (MRP) systems for raw material procurement. The minimum stock level is set at 2.5 times the daily production requirement, and orders are placed when inventory drops below this threshold. However, challenges such as fluctuating sales forecasts and uncertainties in raw material delivery schedules continue to affect procurement efficiency. These factors contribute to stock imbalances and disrupt production planning.

For storage and distribution, the company applies the First In, First Out (FIFO) method and the Kanban Work Order (WO) system to ensure that older raw materials are used first, preventing excess inventory accumulation on the production line. While these methods effectively control inventory flow, stock recording inconsistencies persist due to manual documentation by subcontractors. Additionally, the transition from PRONES to ERP INFOR has encountered difficulties, with a stock recording discrepancy of 5.09%, indicating that the new system has not yet been fully stabilized. Addressing these issues requires improved data integration and system optimization.

Several key challenges in inventory management at PT. PK Manufacturing Indonesia include supply uncertainty due to dependence on a single supplier, sudden changes in sales forecasts, and incomplete integration of stock recording systems. Inaccurate inventory data frequently hinders procurement decisions, leading to delays in material availability. To mitigate these risks, the company must explore alternative suppliers and implement a more real-time inventory recording system to improve stock accuracy and decision-making efficiency.

Both internal and external factors influence inventory turnover. Internally, incomplete digitalization of inventory records, production capacity constraints due to material availability, and limited interdepartmental coordination slow down inventory information flow. Externally, supplier reliability issues, fluctuations in raw material prices, and shifting customer demands impact stock management strategies. Supplier diversification emerges as a critical solution to reduce reliance on a single vendor and ensure the stability of material supply.

To improve inventory turnover, PT. PK Manufacturing Indonesia should accelerate the transition from PRONES to ERP INFOR to enhance stock recording accuracy and real-time data access. Additionally, supplier diversification should be prioritized to reduce supply chain risks and minimize procurement delays. A more flexible procurement strategy, such as adjusting safety stock levels based on sales forecast variations, should also be implemented. Strengthening interdepartmental coordination is essential, particularly in communicating changes to the Bill of Materials (BOM). Furthermore, optimizing the Kanban-based Work Order (WO) system will prevent inventory buildup on the production floor and streamline raw material distribution.

Overall, while PT. PK Manufacturing Indonesia has adopted modern inventory management practices such as MRP, FIFO, and Kanban, challenges remain in stock recording accuracy, supplier dependency, and unstable sales forecasts. To enhance inventory turnover efficiency, the company must focus on integrating stock recording systems, strengthening relationships with alternative suppliers, and improving coordination between departments. These strategic improvements will help the company achieve a more efficient and resilient inventory management system.

CONCLUSION

This study investigates various strategies implemented by PT. PK Manufacturing Indonesia to improve inventory turnover and identifies several key components affecting

inventory management efficiency. Factors such as the incomplete integration of stock recording systems, fluctuating market demand, and dependency on a single supplier create significant challenges in managing inventory effectively. These issues contribute to stock imbalances and disruptions in production planning.

The use of the Kanban Work Order system and the First In, First Out (FIFO) method has proven beneficial in facilitating raw material distribution and stock control. However, discrepancies between the PRONES and ERP INFOR systems indicate that the transition process has yet to be fully stabilized. Additionally, uncertainties in the supply chain and sudden changes in sales forecasts further complicate stock management, leading to inefficiencies in procurement and storage.

To enhance inventory turnover, the company must adopt a more flexible procurement policy, improve interdepartmental coordination, and optimize the ERP INFOR system to ensure accurate and real-time stock recording. Reducing the risks associated with stock shortages or excess inventory requires supplier diversification and improved forecasting accuracy. By addressing these issues, PT. PK Manufacturing Indonesia can achieve a more efficient inventory management system, minimize storage costs, and maintain competitiveness in the automotive market.

Several limitations of this study must be acknowledged. As the research focuses solely on a single company, the findings cannot be generalized to the automotive industry as a whole. The qualitative nature of this study also means that it does not include an in-depth quantitative analysis of how the suggested strategies impact operational efficiency. Due to the limited observation period, this research does not comprehensively analyze inventory turnover trends over the long term. External factors influencing inventory strategies, such as government regulations, global raw material price fluctuations, and macroeconomic conditions, have not been fully considered. These limitations should be addressed in future research to provide a more comprehensive understanding of inventory management challenges and solutions.

Based on the research findings, several strategic recommendations can be implemented to improve inventory turnover at PT. PK Manufacturing Indonesia. The optimization of the ERP INFOR system should be prioritized to replace PRONES, which still requires manual stock recording. Accelerating the ERP INFOR transition and providing employee training will enhance system utilization and data accuracy. Supplier diversification is another critical strategy to reduce dependence on a single vendor and minimize the risk of supply delays. By expanding the supplier network, the company can ensure a more stable raw material supply, improving production efficiency.

Furthermore, enhancing the accuracy of demand forecasting through historical sales data analysis and market trend evaluation will help the company anticipate fluctuations in demand more effectively. Implementing a more flexible Just-In-Time (JIT) approach can also prevent excessive raw material and finished goods inventory, optimizing storage and operational costs. Operational efficiency can be improved by integrating the Kanban Work Order system into a digital platform for more precise tracking and stock control. Adjusting safety stock policies based on market demand changes and supplier lead times will further enhance inventory stability.

Strengthening coordination between procurement, production, and warehouse departments is essential to ensure that stock levels remain balanced and aligned with operational requirements. Regular inventory audits should be conducted to verify the accuracy of recorded stock and maintain system reliability. By implementing these recommendations, PT. PK Manufacturing Indonesia can improve inventory turnover, reduce storage costs, and enhance its competitiveness in the automotive industry. A more adaptive and technology-driven inventory management approach will enable the company to respond effectively to market changes and ensure long-term operational sustainability.

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