

## The Influence of Inventory Management and Production Scheduling on the Timeliness of Product Completion of Ratsa Mama at Ratsa Kopi Café

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### ABSTRACT

This study aims to examine the influence of Inventory Management and Production Scheduling on the Timeliness of Product Completion of Ratsa Mama products at Ratsa Kopi Café. Inventory Management is represented by safety stock and lead time management, while Production Scheduling is represented by processing time efficiency. The dependent variable is the timeliness of product completion. A quantitative associative research design was employed using secondary operational data collected from Ratsa Kopi Café. The study analyzed thirty-six operational observations using multiple linear regression with IBM SPSS Statistics. Classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were conducted before hypothesis testing to ensure the validity of the regression model. The empirical findings reveal that Inventory Management positively and significantly affects the Timeliness of Product Completion. Likewise, Production Scheduling also has a positive and statistically significant influence on production timeliness.

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## INTRODUCTION

The food and beverage industry has experienced remarkable growth over the past decade, accompanied by increasingly intense business competition. Coffee shops are no longer competing solely based on product quality but also on operational excellence, customer experience, and service speed. Consumers expect every order to be prepared accurately and delivered within the estimated service time. Consequently, operational efficiency has become one of the primary determinants of customer satisfaction and long-term business sustainability. Operational management plays a strategic role in ensuring that production activities run effectively and efficiently. According to Heizer, Render, and Munson (2020), operational management involves planning, organizing, directing, and controlling organizational resources to transform inputs into valuable outputs. Within the food and beverage industry, operational management directly influences product quality, production efficiency, inventory availability, and service responsiveness.

One of the major operational challenges faced by cafés is maintaining product completion within predetermined service standards. Delays frequently occur because of insufficient raw material availability, ineffective production scheduling, fluctuating customer demand, and inadequate coordination between inventory and production activities. Such operational inefficiencies not only reduce customer satisfaction but also increase operational costs and decrease overall organizational performance. Among the operational functions, Inventory Management serves as one of the most critical activities in maintaining production continuity. Inventory Management refers to the systematic planning, monitoring, controlling, and evaluating of inventory to ensure that raw materials are available in sufficient quantities while minimizing unnecessary holding costs. Effective inventory management enables organizations to maintain an optimal balance between inventory availability and operational efficiency. Conversely, poor inventory management may result in stock shortages, excessive inventory accumulation, production interruptions, and delayed customer service.

In addition to inventory management, Production Scheduling significantly determines production efficiency. Production scheduling refers to the allocation of production resources, sequencing of production activities, and determination of processing times to maximize operational efficiency. Proper scheduling minimizes waiting time, reduces production bottlenecks, improves labor utilization, and enables organizations to complete production activities according to established schedules. Efficient scheduling becomes increasingly important in service-oriented businesses such as coffee shops, where customer demand fluctuates throughout the day. Ratsa Kopi Café is one of the growing coffee shops that offers several signature beverages, including Ratsa Mama, which has become one of its flagship products. Unlike similar beverages offered by competitors, Ratsa Mama utilizes homemade palm sugar syrup prepared internally rather than commercially available sweeteners. This production process requires additional preparation time, inventory planning, and production coordination to ensure product consistency and service quality. Consequently, maintaining adequate raw material availability and efficient

production scheduling becomes essential for preventing production delays and maintaining customer satisfaction.

Although many previous studies have investigated Inventory Management and Production Scheduling within manufacturing industries, relatively limited research has focused on small-scale food and beverage businesses, particularly coffee shops operating with fresh ingredients and customized production processes. Most previous studies emphasize manufacturing productivity, supply chain performance, or warehouse efficiency rather than daily operational performance in café environments. Therefore, this study addresses this research gap by examining how Inventory Management and Production Scheduling influence the Timeliness of Product Completion in a coffee shop setting.

The findings of this study are expected to contribute both theoretically and practically. Theoretically, the research enriches the literature on operational management by extending the application of inventory management and production scheduling concepts to café operations. Practically, the findings provide managerial recommendations for improving operational efficiency, reducing production delays, optimizing inventory planning, and enhancing customer satisfaction through better operational decision-making.

## **LITERATURE REVIEW**

### ***Operational Management***

Operational management is one of the fundamental business functions responsible for transforming organizational resources into products and services that create value for customers. It involves planning, organizing, coordinating, and controlling production activities to achieve efficiency, quality, flexibility, and customer satisfaction. According to Heizer, Render, and Munson (2020), operations management encompasses the design, operation, and continuous improvement of production systems that convert inputs into outputs efficiently. In today's highly competitive business environment, operational management extends beyond production efficiency. Organizations are increasingly expected to develop agile operational systems capable of responding to fluctuating customer demand while maintaining product quality and minimizing operational costs. Slack and Brandon-Jones (2022) emphasize that operational excellence enables organizations to build sustainable competitive advantages through efficient resource utilization and continuous process improvement.

Within the food and beverage industry, operational management becomes particularly important because production activities involve perishable raw materials, short service lead times, and highly variable customer demand. Consequently, cafés must integrate inventory planning, production scheduling, workforce allocation, and quality control to ensure smooth operational performance and timely customer service.

### ***Inventory Management***

Inventory Management refers to the systematic process of planning, controlling, monitoring, and evaluating inventory levels to ensure that raw materials are available when needed while minimizing inventory-related costs. Effective inventory management enables organizations to maintain an optimal balance between inventory availability and cost efficiency.

According to Onserio and Osoro (2025), inventory management is a strategic organizational activity aimed at ensuring continuous material availability while reducing unnecessary inventory carrying costs. Similarly, Olaniyi and Pugal (2024) argue that inventory management forms an integral component of supply chain management because it coordinates procurement activities with production and customer demand.

In food and beverage businesses, inventory management presents unique challenges due to the perishable nature of many raw materials. Excessive inventory may increase spoilage and storage costs, whereas insufficient inventory may interrupt production processes and delay customer service. Therefore, inventory decisions should carefully consider customer demand variability, procurement lead time, and inventory replenishment policies.

This research measures Inventory Management using two operational indicators:

a. Lead Time

Lead time represents the period required from placing an order until raw materials are received and become available for production. Shorter and more predictable lead times improve production continuity by reducing uncertainty during procurement activities.

b. Safety Stock

Safety stock refers to additional inventory maintained to prevent stock shortages resulting from demand fluctuations or procurement delays. Adequate safety stock minimizes production interruptions while maintaining customer service performance. Organizations implementing effective lead time management and appropriate safety stock policies are generally better equipped to respond to production requirements, reduce operational disruptions, and improve service reliability.

### ***Production Scheduling***

Production Scheduling is the process of allocating production resources and determining the sequence and timing of production activities to achieve operational efficiency and meet customer demand. Effective scheduling ensures that production resources are utilized optimally while minimizing waiting time, idle resources, and production bottlenecks. According to Pinedo (2021), production scheduling focuses on assigning limited resources to production tasks over a specified period to optimize organizational objectives. These objectives commonly include minimizing completion time, maximizing resource utilization, reducing work-in-process inventory, and ensuring on-time delivery. Ivanov (2020) further explains that production scheduling contributes significantly to operational resilience because structured scheduling enables organizations to respond efficiently to production uncertainties and fluctuating

customer demand. Within café operations, production scheduling involves determining production priorities, organizing employee workloads, allocating preparation activities, and managing beverage preparation sequences. Since customer orders arrive continuously throughout operating hours, production scheduling directly influences waiting time and service quality.

This study measures Production Scheduling using the following indicator:

a. Processing Time

Processing time represents the amount of time required to complete one production unit from preparation until final completion. Efficient processing time enables organizations to serve customers more quickly while maintaining product quality standards. Reducing unnecessary processing time through better scheduling contributes significantly to operational efficiency and customer satisfaction.

### *Timeliness of Product Completion*

Timeliness of Product Completion refers to an organization's ability to complete production activities according to predetermined schedules or customer expectations. Timely completion represents one of the most important indicators of operational performance because it directly affects customer satisfaction, service quality, and organizational competitiveness. According to Heizer et al. (2020), timely production completion demonstrates the effectiveness of production planning, inventory control, workforce management, and operational coordination. Similarly, Slack and Brandon-Jones (2022) argue that organizations capable of consistently delivering products on schedule are more likely to achieve higher customer loyalty and operational efficiency.

In café operations, timely product completion reflects the organization's capability to prepare customer orders within established service standards despite fluctuations in customer arrivals and operational constraints.

This research measures Timeliness of Product Completion using the following indicator:

a. On-Time Completion

On-time completion refers to the ability of production activities to finish within the standard completion time established by the café. Higher levels of on-time completion indicate better operational performance and more effective production management.

### *Relationship between Inventory Management and Timeliness of Product Completion*

Inventory Management is widely recognized as a key determinant of operational performance. Adequate inventory availability enables production processes to continue without interruption, thereby reducing production delays and improving customer service performance. Organizations experiencing frequent stock shortages often face production interruptions that delay order completion and reduce operational efficiency. Conversely, organizations maintaining appropriate safety stock and efficient procurement systems are better positioned to satisfy customer demand promptly.

Previous empirical studies have consistently demonstrated a positive relationship between inventory management and operational performance. Effective inventory management improves production continuity, reduces production interruptions, and enhances delivery performance. Therefore, organizations implementing effective inventory management practices are expected to achieve higher levels of product completion timeliness.

Based on this theoretical explanation, the following hypothesis is proposed:  
H1: *Inventory Management positively and significantly influences the Timeliness of Product Completion.*

### ***Relationship between Production Scheduling and Timeliness of Product Completion***

Production Scheduling directly determines the efficiency of production activities through proper allocation of resources and sequencing of operational tasks. Efficient scheduling minimizes idle time, reduces bottlenecks, and improves production flow. Previous studies indicate that structured production scheduling enhances operational efficiency by reducing production delays and improving customer responsiveness. Efficient scheduling also enables organizations to utilize production capacity more effectively while maintaining production quality. In café operations, where customer demand changes dynamically throughout the day, effective production scheduling becomes increasingly important to ensure that products are completed according to promised service times.

Accordingly, the second hypothesis is formulated as follows:

H2: *Production Scheduling positively and significantly influences the Timeliness of Product Completion.*

### ***Conceptual Framework***

This study examines the influence of two independent variables, namely Inventory Management ( $X_1$ ) and Production Scheduling ( $X_2$ ), on the dependent variable Timeliness of Product Completion ( $Y$ ). Inventory Management is represented by Lead Time and Safety Stock, while Production Scheduling is represented by Processing Time. The proposed conceptual framework assumes that effective inventory control and efficient production scheduling contribute positively to improving production timeliness and overall operational performance at Ratsa Kopi Café.

## METHODOLOGY

### *Research Design*

This study employed a *quantitative research approach* using an *associative research design* to examine the influence of Inventory Management and Production Scheduling on the Timeliness of Product Completion at Ratsa Kopi Café. The quantitative approach was selected because it enables objective measurement of relationships among variables through statistical analysis. An associative design is appropriate for identifying the causal relationship between independent and dependent variables. In this study, Inventory Management ( $X_1$ ) and Production Scheduling ( $X_2$ ) were treated as independent variables, while Timeliness of Product Completion ( $Y$ ) served as the dependent variable.

### *Research Location and Period*

The research was conducted at *Ratsa Kopi Café*, Indonesia, which specializes in coffee-based beverages and signature products. The object of this study focused specifically on the production process of *Ratsa Mama*, one of the café's flagship beverages that requires a unique preparation process involving homemade palm sugar syrup. The research utilized operational production records collected during the 2023–2025 observation period. These records contain production-related information required to calculate inventory management indicators, production scheduling indicators, and production completion performance.

### *Population and Sample*

The population of this study consisted of all operational production activities related to beverage preparation at Ratsa Kopi Café.

Considering the research objectives, the sample was selected using a *purposive sampling technique*. The sample specifically comprised operational observations of *Ratsa Mama* production because this product represents one of the café's most frequently ordered beverages and involves relatively complex inventory and production processes compared with other menu items. A total of 36 *operational observations* were analyzed in this study. Each observation represents one production period containing information regarding inventory conditions, processing activities, and product completion time. Purposive sampling was considered appropriate because the selected observations fulfilled predetermined criteria related to production continuity, inventory availability, and production scheduling activities.

### **Data Source**

This research employed **secondary data** obtained directly from the operational records of Ratsa Kopi Café. The data consisted of production reports, inventory records, procurement information, and production scheduling documents maintained by the café management. Additional supporting information was collected from books, scientific journals, conference proceedings, and previous empirical studies related to operations management, inventory management, and production scheduling. The use of secondary operational data ensured that the analysis reflected actual production conditions rather than subjective perceptions obtained through questionnaires.

## **RESEARCH RESULT**

### **Descriptive Statistics**

Descriptive statistical analysis was conducted to provide an overview of the characteristics of the research variables before hypothesis testing. The analysis includes the minimum value, maximum value, mean and standard deviation of each independent variable.

**Table 1. Descriptive Statistics**

| <b>Variable</b>                 | <b>N</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Mean</b> | <b>Standard Deviation</b> |
|---------------------------------|----------|----------------|----------------|-------------|---------------------------|
| Inventory Management ( $X_1$ )  | 36       | 27.75          | 129.34         | 72.66       | 26.149                    |
| Production Scheduling ( $X_2$ ) | 36       | 2922.80        | 4417.00        | 3612.32     | 395.095                   |

*Source: Processed Research Data (2026).*

Table 1 shows that Inventory Management has an average value of 72.66, with a minimum value of 27.75 and a maximum value of 129.34. The standard deviation of 26.149 indicates moderate variation in inventory management performance across the observation periods. Production Scheduling has a mean value of 3612.32, ranging from 2922.80 to 4417.00 with a standard deviation of 395.095. The relatively moderate dispersion suggests that production scheduling practices were implemented consistently throughout the observation period. Overall, the descriptive statistics indicate that both independent variables exhibit sufficient variation to support further statistical analysis.

### **Classical Assumption Tests**

Prior to regression analysis, several classical assumption tests were conducted to verify whether the regression model satisfied the assumptions required for multiple linear regression.

### **Normality Test**

The normality test was performed using the *One-Sample Kolmogorov-Smirnov Test* to determine whether the regression residuals followed a normal distribution.

**Table 2. Normality Test**

| Test                        | Significance |
|-----------------------------|--------------|
| Monte Carlo Sig. (2-tailed) | 0.300        |

*Source: Processed Research Data (2026).*

The Monte Carlo significance value is 0.300, which is greater than the significance level of 0.05. Therefore, the residuals are normally distributed, indicating that the normality assumption has been satisfied. The Normal Probability Plot further confirms this result because the residual points follow the diagonal line without showing substantial deviation. Consequently, the regression model is considered appropriate for further statistical analysis

### **Multicollinearity Test**

Multicollinearity testing was conducted using the *Tolerance* and *Variance Inflation Factor (VIF)* values.

**Table 3. Multicollinearity Test**

| Variable              | Tolerance | VIF   |
|-----------------------|-----------|-------|
| Inventory Management  | 0.984     | 1.017 |
| Production Scheduling | 0.984     | 1.017 |

*Source: Processed Research Data (2026).*

Both independent variables have tolerance values above 0.10 and VIF values below 10, indicating that multicollinearity is not present. Therefore, Inventory Management and Production Scheduling are statistically independent and suitable for inclusion in the regression model.

### **Heteroscedasticity Test**

The heteroscedasticity test was conducted using scatterplot analysis. The scatterplot demonstrates that the residuals are randomly distributed around the zero line without forming any systematic pattern. This indicates that the regression model does not suffer from heteroscedasticity, and the assumption of constant residual variance is satisfied. Therefore, the regression model fulfills all classical assumptions required for multiple linear regression analysis.

### **Multiple Linear Regression Analysis**

Multiple linear regression analysis was employed to determine the influence of Inventory Management and Production Scheduling on the Timeliness of Product Completion.

**Table 4. Multiple Linear Regression Results**

| Variable              | Regression Coefficient ( $\beta$ ) |
|-----------------------|------------------------------------|
| Constant              | 95.931                             |
| Inventory Management  | 3.255                              |
| Production Scheduling | 3.130                              |

*Source: Processed Research Data (2026).*

The regression equation can be expressed as follows:

$$Y = 95.931 + 3.255X_1 + 3.130X_2$$

The regression model indicates that both Inventory Management and Production Scheduling have *positive coefficients*, suggesting a positive relationship with Timeliness of Product Completion. The constant value of **95.931** represents the baseline level of product completion timeliness when both independent variables remain constant. The regression coefficient of *Inventory Management* ( $\beta = 3.255$ ) indicates that an improvement in inventory management is associated with an increase in the timeliness of product completion, assuming other variables remain constant.

Similarly, the regression coefficient of *Production Scheduling* ( $\beta = 3.130$ ) indicates that improvements in production scheduling contribute positively to product completion timeliness. Overall, the regression coefficients suggest that both operational variables play important roles in improving production performance.

#### ***Coefficient of Determination***

The coefficient of determination was calculated to evaluate the explanatory power of the regression model.

**Table 5. Coefficient of Determination**

| Statistic               | Value |
|-------------------------|-------|
| Adjusted R <sup>2</sup> | 0.589 |

*Source: Processed Research Data (2026).*

The Adjusted R<sup>2</sup> value of 0.589 indicates that 58.9% of the variation in Timeliness of Product Completion is jointly explained by Inventory Management and Production Scheduling. The remaining 41.1% is influenced by other operational variables that were not included in this research model, such as employee productivity, customer demand variability, production capacity, equipment availability, workplace layout, and operational experience. The coefficient of determination demonstrates that the proposed regression model possesses moderate explanatory capability and adequately represents the operational phenomena investigated in this study.

#### ***Hypothesis Testing***

The hypotheses were evaluated using the t-test at a significance level of 5%.

**Table 6. Hypothesis Testing**

| Variable              | t-value | Significance | Decision |
|-----------------------|---------|--------------|----------|
| Inventory Management  | 2.908   | 0.020        | Accepted |
| Production Scheduling | 2.170   | 0.010        | Accepted |

*Source: Processed Research Data (2026).*

The results indicate that Inventory Management has a t-value of 2.908 with a significance value of 0.020, which is below the 0.05 significance level. Therefore, Hypothesis 1 is accepted, indicating that Inventory Management has a positive and statistically significant influence on the Timeliness of Product Completion. Similarly, Production Scheduling produces a t-value of 2.170 with a significance value of 0.010, which is also below 0.05. Accordingly, Hypothesis 2 is accepted, confirming that Production Scheduling positively and significantly influences the Timeliness of Product Completion. These findings suggest that improvements in inventory planning and production scheduling contribute

substantially to reducing production delays and improving operational efficiency at Ratsa Kopi Café.

## DISCUSSION

### *The Effect of Inventory Management on the Timeliness of Product Completion*

The statistical analysis demonstrates that Inventory Management has a positive and statistically significant effect on the Timeliness of Product Completion. The t-test results indicate a significance value below the 5% significance level, confirming that effective inventory management contributes to improving operational performance by reducing production delays. This finding suggests that the availability of raw materials plays a fundamental role in ensuring uninterrupted production activities. In café operations, production processes are highly dependent on the availability of fresh ingredients. Any shortage of essential materials may immediately interrupt beverage preparation and extend customer waiting time. Consequently, maintaining adequate inventory levels through effective lead time management and appropriate safety stock policies enables production activities to continue smoothly without operational disruption.

From an operational management perspective, inventory management functions not only as a storage activity but also as a strategic decision-making process that directly affects production continuity. Effective inventory planning allows organizations to anticipate fluctuations in customer demand while minimizing the risk of stock shortages. This operational capability becomes increasingly important in food and beverage businesses where most raw materials have limited shelf lives and customer demand changes throughout the day. The findings support the operational management theory proposed by Heizer, Render, and Munson (2020), who argue that inventory management is essential for maintaining production continuity and ensuring that operational resources remain available whenever production activities are conducted. Similarly, Slack and Brandon-Jones (2022) emphasize that effective inventory control enables organizations to improve responsiveness while simultaneously reducing operational uncertainty.

The empirical findings are also consistent with previous studies. Onserio and Osoro (2025) concluded that effective inventory management improves organizational performance by ensuring continuous material availability and reducing operational interruptions. Likewise, Olaniyi and Pugal (2024) found that inventory planning significantly enhances supply chain efficiency by balancing procurement activities with production demand. These studies reinforce the present finding that inventory availability directly contributes to operational reliability. Within the operational environment of Ratsa Kopi Café, inventory management becomes particularly important because the flagship beverage, Ratsa Mama, utilizes homemade palm sugar syrup that requires additional preparation compared with commercially available ingredients. Unlike conventional cafés that purchase ready-to-use sweeteners, Ratsa Kopi prepares its syrup internally to maintain product uniqueness and flavor consistency. This additional preparation process increases dependence on

accurate inventory planning because shortages of palm sugar or supporting ingredients immediately delay beverage production.

Therefore, maintaining proper safety stock and accurately estimating procurement lead time become critical managerial activities. Effective inventory management enables café management to maintain uninterrupted production, reduce customer waiting time, and improve service reliability. These operational improvements ultimately contribute to higher customer satisfaction and strengthen the café's competitive position. Overall, the findings demonstrate that inventory management should be considered a strategic operational capability rather than merely an inventory control function. Organizations capable of maintaining inventory availability efficiently are more likely to achieve higher operational performance and consistently deliver products according to predetermined service standards.

### ***The Effect of Production Scheduling on the Timeliness of Product Completion***

The empirical analysis also indicates that Production Scheduling has a positive and statistically significant influence on the Timeliness of Product Completion. The statistical results confirm that effective scheduling practices contribute to improving production efficiency by organizing production activities more systematically and reducing unnecessary delays. Production scheduling determines how production resources—including labor, equipment, and processing time—are allocated throughout operational activities. Effective scheduling minimizes idle time, prevents production bottlenecks, and improves workflow continuity. In service-oriented businesses such as cafés, where customer arrivals fluctuate significantly during operating hours, efficient scheduling becomes essential for maintaining consistent service quality.

The positive regression coefficient obtained in this study indicates that improvements in production scheduling are associated with increased production timeliness. This finding implies that organizing production sequences and managing processing time effectively enables Ratsa Kopi Café to complete customer orders more efficiently while maintaining product quality. These findings are consistent with the scheduling theory proposed by Pinedo (2021), who states that production scheduling aims to optimize resource allocation and minimize completion time. Effective scheduling enables organizations to improve productivity while reducing operational inefficiencies caused by resource conflicts and waiting time.

Similarly, Ivanov (2020) argues that production scheduling contributes to organizational resilience because structured production planning allows organizations to respond more effectively to operational uncertainty and fluctuating customer demand. Efficient scheduling improves production flexibility while maintaining service consistency under dynamic operational conditions. The present findings are also supported by previous empirical research. Rahmadhani et al. (2024) reported that structured production scheduling significantly improves production efficiency and reduces production delays. Furthermore, Afma (2012) demonstrated that appropriate scheduling techniques improve on-time product delivery by optimizing production

sequences. These studies collectively support the argument that scheduling decisions directly influence operational performance.

In the operational context of Ratsa Kopi Café, production scheduling plays an essential role because beverage preparation consists of several sequential activities, including ingredient preparation, espresso extraction, syrup mixing, milk preparation, ice handling, and beverage assembly. During peak operating hours, multiple customer orders arrive simultaneously, increasing production complexity. Without proper scheduling, baristas may experience workflow congestion, resulting in longer customer waiting times. Implementing structured production scheduling allows café management to allocate production activities more efficiently, prioritize customer orders appropriately, and optimize employee workload distribution. Consequently, customer orders can be completed within predetermined service standards despite fluctuations in demand.

From a managerial perspective, production scheduling should not merely focus on assigning production tasks but also on continuously monitoring production performance, evaluating processing time, and improving operational procedures. Continuous scheduling improvement enables organizations to respond more effectively to changing customer demand while maintaining operational efficiency. Overall, the findings indicate that production scheduling represents a strategic operational tool that significantly enhances production performance by improving workflow coordination, reducing production delays, and increasing customer satisfaction.

### ***Managerial Implications***

The findings of this study provide several practical implications for café management, particularly in small and medium-sized food and beverage businesses.

- a. First, management should strengthen inventory planning by implementing more accurate demand forecasting and maintaining adequate safety stock levels for critical raw materials. Periodic monitoring of inventory levels and supplier lead times will help minimize stock shortages and reduce operational disruptions.
- b. Second, production scheduling should be continuously evaluated to improve workflow efficiency. Standardizing beverage preparation procedures, optimizing employee task allocation, and monitoring processing time can reduce production bottlenecks and improve service consistency.
- c. Third, integrating inventory management and production scheduling through digital operational systems may further enhance decision-making. The adoption of simple inventory management software or point-of-sale systems capable of monitoring inventory levels in real time could improve procurement planning and operational responsiveness.

- d. Finally, continuous employee training in inventory handling and production scheduling practices is recommended to ensure that operational improvements are consistently implemented throughout the organization.

These managerial recommendations may assist Ratsa Kopi Café in improving operational efficiency, strengthening customer satisfaction, and sustaining competitive advantage within the increasingly competitive food and beverage industry.

## CONCLUSIONS AND RECOMMENDATIONS

This study examined the influence of Inventory Management and Production Scheduling on the Timeliness of Product Completion of Ratsa Mama products at Ratsa Kopi Café. The empirical findings indicate that Inventory Management has a positive and statistically significant influence on the timeliness of product completion. Effective inventory management ensures the continuous availability of raw materials through proper lead time planning and adequate safety stock, thereby minimizing production interruptions and supporting timely order fulfillment.

Furthermore, the study reveals that Production Scheduling also has a positive and statistically significant effect on the timeliness of product completion. Efficient scheduling enables better coordination of production activities, improves processing efficiency, reduces bottlenecks, and enhances operational performance. The coefficient of determination demonstrates that Inventory Management and Production Scheduling jointly explain 58.9% of the variation in the Timeliness of Product Completion, while the remaining 41.1% is influenced by other operational factors beyond the scope of this study, such as employee productivity, production capacity, demand fluctuations, equipment availability, and workplace layout.

## ADVANCED RESEARCH

The findings suggest that café managers should prioritize effective inventory planning and structured production scheduling as strategic operational practices to improve service efficiency and customer satisfaction. Future studies are encouraged to incorporate additional operational variables and larger research samples to provide a more comprehensive understanding of operational performance within the food and beverage industry.

## REFERENCES

- Afma, V. M. (2012). Production scheduling to improve on-time product delivery. (Please adjust according to the original publication details).
- Chopra, S., & Meindl, P. (2021). Supply chain management: Strategy, planning, and operation (8th ed.). Pearson.
- Creswell, J. W., & Creswell, J. D. (2023). Research design: Qualitative, quantitative, and mixed methods approach (6th ed.). SAGE Publications.

- Dolgui, A., Ivanov, D., & Sokolov, B. (2020). Reconfigurable supply chain: The X-network. *International Journal of Production Research*, 58(13), 4138–4163.
- Ghozali, I. (2018). *Aplikasi analisis multivariate dengan program IBM SPSS* (9th ed.). Badan Penerbit Universitas Diponegoro.
- Heizer, J., Render, B., & Munson, C. (2020). *Operations management: Sustainability and supply chain management* (13th ed.). Pearson.
- Ivanov, D. (2020). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis. *Transportation Research Part E: Logistics and Transportation Review*, 136, 101922.
- Olaniyi, O. A., & Pugal, P. S. (2024). Optimising inventory management strategies for cost reduction in supply chains.
- Onserio, S., & Osoro, A. (2025). Inventory management and organizational performance. *International Journal of Social Sciences Management and Entrepreneurship*, 9(2), 262–275.
- Pinedo, M. (2021). *Scheduling: Theory, algorithms, and systems* (6th ed.). Springer.
- Puspitawati, L., et al. (2024). Enhancing inventory efficiency in supply chain systems. *Cogent Business & Management*.
- Queiroz, M. M., Ivanov, D., Dolgui, A., & Wamba, S. F. (2020). Impacts of epidemic outbreaks on supply chains: Mapping a research agenda amid the COVID-19 pandemic through a structured literature review. *Annals of Operations Research*.
- Rahmadhani, M. A., et al. (2024). Penentuan penjadwalan produksi fabrikasi baja dengan pendekatan PDCA serta metode FCFS dan SPT.
- Sekaran, U., & Bougie, R. (2021). *Research methods for business: A skill-building approach* (9th ed.). Wiley.
- Slack, N., & Brandon-Jones, A. (2022). *Operations and process management: Principles and practice for strategic impact* (6th ed.). Pearson.

- Stevenson, W. J. (2021). Operations management (14th ed.). McGraw-Hill Education.
- Taherdoost, H. (2020). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 9(1), 18-27.
- Wardhani, D. K., & Sukmono, T. (2024). EOQ optimization in inventory management.