International Journal of Business and Quality Research

https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

The Influence of Store Layout, Product Display, and Inventory Control on Operational Efficiency at MR.DIY Ngawi and Magetan Branches

Naufal Sandya Sabilillah[1]*, Hartirini Warnaningtyas[2] , Muhammad Imron[3]
[1,2,3]Department of Management, Faculty of Economics, Universitas Merdeka Madiun, Indonesia
*Corresponding author: naufalsandya234@email.com
https://orcid.org/0000-0002-7867-270X

Abstract

Operational efficiency has remained a major concern in the modern retail industry due to intense business competition and the ongoing need to optimize operational costs. While previous studies have separately addressed individual commercial strategies, integrated structural assessments of retail management factors remain sketchy. Therefore, this study examines the predictive role of store layout, product display, and inventory control on operational efficiency at MR.DIY Ngawi and Magetan branches. A quantitative explanatory research design was adopted, while a total saturation census sampling technique was used to select the study population consisting of 30 active employees. Two validated questionnaires were used to collect data from the participants and analyzed using multiple linear regression analysis to test research hypotheses at the level of significance. The result demonstrated that store layout, product display, and inventory control significantly correlated with operational efficiency among study participants, with an Adjusted R Square of 0.881 and an F value of 72.47 at p less than 0.001. Furthermore, store layout (B = 0.493, p = 0.001) and inventory control (B = 0.594, p = 0.001) significantly predicted operational efficiency, whereas product display did not demonstrate a significant partial effect (B = -0.111, p = 0.284). The study concludes that store layout and inventory control significantly contributed to operational efficiency among the study participants. The study recommends that retail stakeholders and store managers should take proactive measures to maintain retail space layouts and execute strict stock control systems to minimize waste and ensure sustained operational efficiency.

Keywords: Store Layout, Product Display, Inventory Control, Operational Efficiency, Modern Retail

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

INTRODUCTION

The modern retail industry in Indonesia has experienced rapid development over the last two decades, driven by shifting consumption patterns and increased purchasing power among consumers. In this highly competitive market, operational efficiency has emerged as the primary determinant of success for retail firms. Operational efficiency refers to a retail ability to optimize costs, streamline labor, and enhance customer satisfaction by integrating physical space design with inventory management. A structured store layout guides consumer flow and simplifies product discovery, while attractive product displays stimulate purchasing decisions. Simultaneously, robust inventory control balances product availability with holding costs, preventing both stockouts and excessive warehousing expenses. Managing these variables effectively is crucial for modern retailers to maintain smooth distribution networks and consistently meet sales targets.

Academic literature reinforces the significance of these operational variables. Yholanda and colleagues in (2024) demonstrated that store layout and promotion explain sixty eight percent of the variance in consumer purchasing decisions at MR.DIY Koto Baru. Similarly, Mariboto and colleagues in (2023) highlighted that restructuring retail space using systematic tracking tools enhances space efficiency and customer engagement. Nurindra and colleagues in (2025) identified display areas as the highest priority for layout optimization to support overall operational efficiency. Furthermore, Suprayogi and colleagues (2022) found that product displays dictate fifty one point six percent of the purchase decision variance, a finding supported by Junadi (2022) and Dyanti and Indriyatni in (2023) regarding the importance of quality visual displays over sheer product variety. On the supply side, Mona in 2020 and Tangkere and colleagues (2024) proved that implementing the economic order quantity model optimizes inventory costs and eliminates stockout risks. This is corroborated by Ningrat and Gunawan in 2023, who reported inventory cost savings of six hundred fifty one thousand Rupiah per year when shifting from traditional policies to optimal inventory models. Budiman and Astuti (2025) concluded that maximizing resource utility and minimizing waste are key drivers of operational success and competitiveness in consumer goods industries.

Collectively, these findings reveal that layout, display, and stock management are interdependent pillars of operational success. As a leading modern retailer, MR.DIY manages thousands of diverse household and lifestyle items, posing a substantial challenge in maintaining operational flow. This study investigates the branches in Ngawi and Magetan, chosen purposively to represent distinct operational demands, where the Ngawi branch serves highly mobile cross regional shoppers and the Magetan branch manages complex inventory with limited staff. Therefore, this study examines the influence of store layout,

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

product display, and inventory control on operational efficiency at MR.DIY Ngawi and Magetan branches. The findings are intended to offer theoretical contributions to retail management literature and practical guidelines for managers to achieve sustainable competitive advantages in local retail markets.

THEORETICAL REVIEW

The concept of store layout is fundamental to retail management. Apple (1990) and Maria et al. (2021) in Nurindra et al. (2025) defined layout as "proses perancangan dan pengaturan fasilitas fisik, seperti mesin atau peralatan, lahan, bangunan, dan ruangan, bertujuan untuk meningkatkan hubungan yang efisien, ekonomis, dan aman antara pekerja, aliran bahan, aliran informasi, dan metode yang diperlukan untuk mencapai tujuan bisnis yang aman, efisien dan ekonomis." In a retail context, layout is understood as the spatial arrangement of physical space, fixtures, and products to facilitate efficient customer flow, ease shopping, and improve customer satisfaction. Yholanda et al. (2024) argued that an optimal layout helps consumers locate items easily, enhancing their comfort and ultimately driving purchase decisions. Managerially, Kotler and Keller (2018) noted that layout aims to create an efficient shopping flow, assist product discovery, and support general store operations. This is supported by Mariboto et al. (2023), who demonstrated that layout redesign using Activity Relationship Charts and Total Closeness Ratings optimizes space utility and customer experience, while Nurindra et al. (2025) proved that strategic display placement directly enhances workspace safety and movement. Thus, as operationalized by Nurindra et al. (2025), the key indicators of store layout include strategic product display placement, easy customer access to shelves, efficient utilization of floor space, and overall shopping comfort.

Product display or visual arrangement plays a vital role in attracting consumer interest and streamlining retail operations. Rahmadana (2016) in Suprayogi et al. (2022) defined product arrangement as "The placement of merchandise in specific areas with the aim of attracting consumer interest, making it easier for consumers to view as well as choose, and ultimately buy the products offered." This definition underscores that effective display requires attention to cleanliness, neatness, accessibility, informative presentation, and visual appeal. Empirical research by Suprayogi et al. (2022) revealed that product display has a positive and significant effect on consumer purchase decisions, accounting for fifty one point six percent of the variance. Similarly, Dyanti and Indriyatni (2023) asserted that product displays, combined with product quality, strongly determine purchase outcomes. Furthermore, Junadi (2022) emphasized that orderly and category based product arrangements enable consumers to navigate shelves effortlessly, thereby increasing both

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

transaction speed and retail efficiency. According to Suprayogi et al. (2022) and Junadi (2022), the primary objective of product arrangement is to construct a neat, informative, and accessible product showcase. Consequently, based on Purwaningsih et al. (2020), this variable is measured through indicators such as the neatness and orderliness of displays, placement according to consumer shopping categories, stock completeness, and high visual appeal.

Inventory control is a critical back end process that maintains retail balance by matching supply with demand. Ningrat and Gunawan (2023) defined inventory control as the systematic effort of a company to supply required products to optimize operational processes, ensuring smooth workflows while achieving the lowest possible costs. Assauri (1998) in Ningrat and Gunawan (2023) explained that its main objective is to prevent stockouts that disrupt sales, keep inventory levels reasonable to control carrying costs, and avoid frequent small scale orders that escalate processing costs. In practice, Ningrat and Gunawan (2023) proved that applying the economic order quantity model reduces annual carrying costs significantly compared to traditional methods. This efficiency is mirrored by Tangkere et al. (2024), who confirmed that optimal ordering points and safety stock levels prevent inventory shortages while minimizing storage expenses. Furthermore, Mona (2020) demonstrated that systematic stock management directly sustains sales volume and brand profitability by keeping product availability stable. From a strategic perspective, Lahu and Sumarauw (2016) noted that inventory control minimizes operational friction by preventing overstocking and understocking. As outlined by Kumontoy et al. (2023), the indicators for inventory control comprise product availability matching market demand, cost efficiency in ordering and storage, routine stock audits, and the application of economic order quantity models.

Operational efficiency represents the overarching outcome of integrated retail management. Budiman and Astuti (2025) defined operational efficiency as a firm capacity to optimize resources, including human capital, materials, and technology, to deliver goods or services at lower costs and shorter durations without compromising operational standards. Retail literature demonstrates that operational efficiency is determined by the intersection of structured store layouts as discussed by Yholanda et al. (2024) and Mariboto et al. (2023), strategic product displays highlighted by Suprayogi et al. (2022) and Junadi (2022), and optimal inventory control analyzed by Mona (2020) and Tangkere et al. (2024). According to Nurindra et al. (2025), the primary objective of operational efficiency is to increase overall productivity, control daily expenditures, and secure long term business viability. Sitinjak and Ginting (2025) added that modern retailers increasingly rely on digital integrations, such as point of sale systems and automated stock software, to accelerate

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

administrative workflows and reduce human error. Thus, based on Sitinjak and Ginting (2025), operational efficiency is evaluated using four core indicators: the smoothness of store operational workflows, the optimization of human and physical resources, the reduction of operational costs through digital technology, and the continuous improvement of service quality and productivity.

METHOD

Research Design

This study utilizes a quantitative explanatory design, which focuses on testing causal hypotheses by analyzing numerical data through statistical procedures to explain the relationship between independent variables, specifically store layout, product display, and inventory control, and the dependent variable, operational efficiency.

Setting and Study Population

The research is conducted at the MR.DIY branches located in Ngawi and Magetan, East Java, involving the entire population of thirty employees and management staff who are directly involved in daily store operations and possess a deep understanding of the work processes.

Sampling Technique Procedure

This research applies a saturated sampling technique, or census method, where the entire population of thirty employees serves as the research sample, ensuring that the findings comprehensively represent the operational dynamics of the branches.

Instruments

According to Apple and Maria in Nurindra et al (2025), **store layout** is the design and arrangement of physical facilities to create workflow efficiency, safety, and operational effectiveness. The indicators for this variable include the strategic placement of product display areas, the ease of consumer access to products on shelves, the efficient use of store space, and consumer shopping comfort.

According to Rahmadana in Suprayogi et al (2022), **product display** is the placement of merchandise to attract interest and make it easier for consumers to see and select products. Based on Purwaningsih et al (2020), its indicators encompass the neatness and orderliness of the display, the placement of products by category, the completeness of products according to consumer needs, and the visual appeal of the displayed items.

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

Inventory control focuses on guaranteeing the availability of goods while simultaneously minimizing operational costs. According to Kumontoy et al (2023), the indicators for this variable consist of the availability of goods according to market needs, the efficiency of ordering and storage costs, the periodic supervision of stock, and the application of the economic order quantity method to reduce inventory costs.

According to Budiman and Astuti (2025), **operational efficiency** is the ability to optimize resources to produce services at a lower cost and shorter time without reducing work standards. Its indicators according to Sitinjak and Ginting (2025) include the smoothness of the operational workflow, the optimization of resource use, the reduction of costs through digital systems, and the enhancement of productivity and service quality.

Data Collection

Primary data are obtained directly from employees through the distribution of physical questionnaires at both branches, while secondary data are gathered through internal company documents, organizational archives, and relevant literature to provide a factual and theoretical foundation for the analysis.

Data Analysis

JASP was used to analyze data collected. Both descriptive and inferential statistics were calculated. The hypothesis was tested using multiple linear regression analysis and accepted at p less than 0.001 level of significance.

RESULTS

Table 1: Profile of Research Respondents

Category	Sub Category	Frequency	Percentage
Age	18 to 25 Years	12	40.0
	26 to 30 Years	13	43.3
	31 to 35 Years	4	13.3
	Above 35 Years	1	3.3
Gender	Male	25	83.3
	Female	5	16.7

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

Tenure	Less than 1 Year	1	3.3
	1 to 2 Years	8	26.7
	3 to 4 Years	7	23.3
	More than 4 Years	14	46.7
Total		**30**	**100.0**

The respondent profile analysis indicates that the research sample is primarily composed of male employees aged between 26 and 30 years who possess extensive experience within the company, as evidenced by nearly half of the participants having served for more than four years. This demographic composition suggests that the workforce at MR.DIY Ngawi and Magetan branches is predominantly mature and seasoned, providing a reliable foundation of operational knowledge necessary to accurately assess the impact of store layout, product display, and inventory control on overall operational efficiency.

Testing the hypothesis…

Store layout, product display, and inventory control will significantly predict operational efficiency among employees at MR.DIY Ngawi and Magetan branches. The hypothesis was tested using multiple linear regression and the results are presented in Tables 2a-c.

Table 2a: Model of Store Layout, Product Display, and Inventory Control on Operational Efficiency

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.945	.893	.881	0.191

Table 2b: ANOVA of Store Layout, Product Display, and Inventory Control on Operational Efficiency

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.906	3	2.635	72.47	.001

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

Residual	0.946	26	0.036		
Total	8.852	29			

Table 2c: Coefficients Predicting Operational Efficiency from Store Layout, Product Display, and Inventory Control

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
(Constant)	0.342	0.370		0.925	.363
Store Layout	0.493	0.125	.385	3.946	.001
Product Display	-0.111	0.102	-.124	-1.094	.284
Inventory Control	0.594	0.102	.725	5.820	.001

Tables 2a-c show the result of the regression analysis carried out to determine if store layout, product display, and inventory control will predict operational efficiency among employees at MR.DIY Ngawi and Magetan branches. The result revealed that the predictors significantly predicted operational efficiency among study participants, R Square = .893, F (3,26) = 72.47, $p < .001$. The standardized beta coefficients indicate that inventory control (Beta = .725, $p < .001$) and store layout (Beta = .385, $p < .001$) have high and statistically significant predictive relationships, whereas product display did not show a significant positive effect (Beta = -.124, p = .284). The unstandardized coefficients suggest that for every one-point increase in inventory control and store layout, operational efficiency increases by approximately .594 and .493 points respectively. Furthermore, the model explains that the predictors accounted for 89.3 percent of the variance in operational efficiency, a proportion considered high and meaningful in operational research. This partially supported the hypotheses.

DISCUSSION

The findings demonstrated that store layout and inventory control significantly predict operational efficiency at MR.DIY Ngawi and Magetan branches, accounting for eighty nine point three percent of the total variance when combined with product display. Store

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Business and Quality Research
https://e-journal.citakonsultindo.or.id/index.php/IJBQR
E-ISSN: 2985-9468

layout emerged as a strong determinant, which aligns with previous research by Yholanda et al. (2024) and Mariboto et al. (2023). Their studies confirmed that a systematically organized retail space, strategic facility placement, and accessible aisles streamline consumer flow and significantly boost space efficiency. Additionally, as supported by Nurindra et al. (2025), optimizing retail layouts directly minimizes movement barriers for employees, thereby accelerating service time and enhancing overall daily productivity.

Furthermore, inventory control was identified as the most dominant predictor of operational efficiency. This robust relationship corroborates the empirical evidence provided by Ningrat and Gunawan (2023) and Tangkere et al. (2024), who emphasized that optimal stock management models effectively prevent stockouts and minimize holding costs. Proper inventory systems ensure that merchandise is consistently available to meet market demand without generating excessive warehousing expenses, as validated by Mona (2020).

Conversely, product display did not demonstrate a significant positive impact on operational efficiency in this specific context. While previous studies by Suprayogi et al. (2022), Dyanti and Indriyatni (2023), and Junadi (2022) highlighted the importance of visual merchandising in stimulating consumer purchasing decisions, the current study indicates that frequent changes to product arrangements may actually consume excessive employee time and labor. Consequently, managing thousands of diverse items requires substantial effort, meaning that highly complex display strategies do not directly enhance the internal operational workflow efficiency at these specific branches.

CONCLUSION

The study concludes that store layout and inventory control significantly predict operational efficiency at MR.DIY Ngawi and Magetan branches, with inventory control acting as the most dominant determinant. A well-organized layout streamlines employee workflows, while optimal stock management prevents stockouts and minimizes holding costs. Conversely, product display does not significantly improve internal efficiency, as managing complex visual merchandising consumes excessive time and labor, thereby detracting from daily operational productivity.

Recommendations

Based on these findings, retail management should prioritize optimizing inventory control systems and store layouts. Managers must implement precise stock monitoring and forecasting methods to eliminate excessive warehousing costs and maintain product availability. Concurrently, designing clear aisles and strategic facility placements will reduce

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

movement barriers for employees, which directly accelerates service time and enhances overall workspace utility.

Furthermore, the management needs to simplify their product display strategies to prevent operational inefficiencies. Since frequently rearranging thousands of diverse items demands substantial physical labor without boosting internal efficiency, staff should focus on maintaining consistent, accessible, and neat shelf categories instead of complex visual merchandising. This adjustment will allow employees to redirect their energy toward more impactful operational duties.

Limitations and suggestions for further study

This study possesses certain contextual limitations, mainly its restricted scope involving only thirty employees across two specific retail branches, which limits the broader generalizability of the findings. Future researchers are advised to expand the geographical scope and increase the sample size across various modern retail chains to validate these results. Additionally, subsequent studies should incorporate alternative independent variables that potentially influence operational efficiency, such as the implementation of digital retail technology, human resource training, or supply chain logistics, to provide a more comprehensive academic perspective.

REFERENCES

Budiman, F. A., & Astuti, T. R. P. (2025). Analisis pengaruh efisiensi operasional terhadap kualitas produk dalam industri FMCG. *Business and Entrepreneurship Journal (BEJ), 6(1). Universitas Mitra Indonesia*.

Dyanti, A. N., & Indriyatni, L. (2023). Pengaruh display produk, kualitas produk, dan kelengkapan produk terhadap keputusan pembelian konsumen di Alfamart Pucang Gading. Jurnal Ilmiah Fokus Ekonomi, Manajemen, Bisnis & Akuntansi (EMBA), 2(3). Sekolah Tinggi Ilmu Ekonomi Pelita Nusantara.

Junadi, S. (2022). Pengaruh lokasi, penataan produk, dan atribut toko terhadap keputusan pembelian konsumen (Studi kasus di Indomaret Modernland CR30 Kota Tangerang). Skripsi, Universitas Buddhi Dharma.

Kumontoy, M., Tumbel, A., & Tampenawas, J. (2023). Pengaruh brand awareness, brand characteristic dan emotional branding terhadap keputusan pembelian produk MS

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

Glow di MS Glow Pusat Tondano. Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi, 11(1), 1–10.

Mariboto, D., Anisya, S., Azhar, R. K., Sulaiman, A., Patihawa, A. M., Husyairi, K. A., & Ainun, T. N. (2023). Perancangan ulang tata letak untuk pengoptimalisasian ruang pada toko ritel RDSP Bogor. Jurnal Teknologi dan Manajemen Industri Terapan, 2(2).

Mona, R. S. (2020). Pengaruh pengendalian persediaan terhadap penjualan kemeja PT Andalan Nusa Jaya pada Konter Red Cliff di Ramayana Palembang. Skripsi, Universitas Tridinanti Palembang.

Ningrat, N. K., & Gunawan, S. (2023). Pengendalian persediaan bahan baku untuk meningkatkan efisiensi biaya persediaan dengan metode EOQ di UMKM Kerupuk Nusa Sari Ciamis. Jurnal Industri Galuh, 3(1). Universitas Galuh.

Nurindra, R., et al. (2025). Pengendalian tata letak toko dengan metode EOQ dan TCR di PT Sentosa Jaya Bogor. Seminar Nasional Riset dan Teknologi (SEMNASRISTEK). Universitas Indraprasta PGRI.

Purwaningsih, P., Palulungan, J. A., Tethool, A. N., Noviyanti, Satrija, F., & Murtini, S. (2020). Occurrence of gastrointestinal nematode of cattle in Udapi Hilir Sub-District, Manokwari Regency, West Papua Province, Indonesia. IOP Conference Series: Earth and Environmental Science, 478(1), 012032.

Sitinjak, R. F., & Ginting, T. T. M. (2025). Dampak transformasi digital terhadap efisiensi operasional bisnis ritel modern. Jurnal Review Pendidikan dan Pengajaran, 8(4), 8910–8914.

Suprayogi, A., Najibullah, N., Sewaka, S., Sulastri, S., & Ruknan, R. (2022). Pengaruh display produk terhadap keputusan pembelian produk Alfamart Cabang Pondok Jagung Tangerang Selatan. Jurnal Tadbir Peradaban, 2(1).

Tangkere, A. J., Hasan, A. B., & Karuntu, J. M. M. (2024). Analisis pengendalian persediaan pupuk (Studi kasus pada Toko Berlian Tani). Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi, 12(1).

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

Yholanda, Y., et al. (2024). Pengaruh tata letak dan promosi terhadap keputusan pembelian konsumen di MR.DIY Koto Baru. Jurnal Serambi Ekonomi dan Bisnis, 11(2). Universitas Serambi Mekkah.

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.