

Lean Service Model Implementation in Convenience Stores: A Case Study in Inventory and Product Quality Management

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Abstract

The convenience store sector plays a crucial role in the global economy, including in Latin America and Peru. Previous studies have demonstrated the relationship between convenience store density and dietary quality, as well as their impact on public health. However, they face significant challenges in product and inventory management, especially in quality and stock control, which affects customer satisfaction and profitability. This research proposed a service model based on Lean Service tools, such as 5S, Kanban, standardized work and supplier certification, to address these challenges. The implementation of the model showed an 85% reduction in non-conforming products and a 50% improvement in employee performance. These results indicate a significant improvement in operational efficiency and service quality. The academic and socio-economic impact of this research lies in improving operational management and promoting sustainable practices. Researchers are encouraged to explore new directions that integrate Lean tools to optimize convenience store operations.

Keywords

Lean Service, Convenience Stores, Inventory Management. Poor Quality, Supplier Homologation.

Introduction

The convenience store sector plays a crucial role globally, including in Latin America and Peru. Research has shown that the density of convenience and small grocery stores is linked to diet quality in adults, impacting health outcomes (Rodríguez-Guerra et al. 2022). Changes in the retail food environment, such as the presence of convenience stores, have been associated with blood pressure outcomes in Mexican cities (Armendariz et al. 2022). Moreover, the offerings of convenience stores, like desserts, affect consumer value and satisfaction, influencing purchasing behaviors (Cha & LEE 2020). Understanding the food environment in Latin America, particularly concerning obesity-related chronic diseases, underscores the importance of convenience store accessibility in shaping dietary habits (Pérez-Ferrer

et al.2019). Proximity to convenience stores near schools has been correlated with childhood obesity, highlighting the impact of these stores on public health, especially among school-aged children (Zhou et al.2020). Additionally, the epidemiology of diseases like liver cancer in Latin America emphasizes the need to consider environmental factors, including the availability of convenience stores, in public health strategies (Carrilho et al. 2019). Research has also explored the relationship between access to convenience stores and childhood obesity, indicating a complex interplay between store proximity and health outcomes (Xin et al.2019).

The convenience store sector encounters significant management challenges, particularly regarding product quality and inventory control. Issues such as high rates of deteriorated products due to poor quality, the presence of expired goods, and losses from theft or spoilage pose substantial hurdles. Studies have highlighted the impact of these problems on store operations and customer satisfaction, underscoring the necessity for effective management strategies (Rodríguez-Guerra et al. 2022). Additionally, managing convenience stores is crucial in addressing the overstocking of perishable items, which can lead to financial losses and food waste, impacting profitability and sustainability (Armendariz et al. 2022). Ensuring product quality and reducing waste through efficient inventory management are essential for enhancing customer experiences and optimizing store performance (Cha & LEE 2020). Effective management practices are vital in mitigating the risks associated with inventory control, especially in environments where food-related chronic diseases are prevalent (Pérez-Ferrer et al. 2019). Strategies to tackle these challenges include considering the location of convenience stores near schools to promote healthier food choices and combat childhood obesity (Zhou et al. 2020). By addressing these management issues, convenience store operators can enhance operational efficiency and contribute to better health outcomes in their communities (Carrilho et al. 2019).

Resolving the management challenges faced by the convenience store sector is crucial to ensure business sustainability and customer satisfaction. Implementing robust quality control measures and inventory management systems can help mitigate the risks associated with product deterioration and overstocking. By focusing on enhancing product quality and reducing waste, convenience stores can build trust with customers and strengthen their competitive position in the market (Rodríguez-Guerra et al. 2022). Addressing issues related to product conformity and expiration dates is essential for maintaining a positive brand image and meeting consumer expectations (Armendariz et al. 2022). Moreover, prioritizing customer value and satisfaction through strategic product offerings and service excellence is key to fostering loyalty and driving business growth (Cha & LEE 2020). By improving the overall food environment and promoting healthier choices, convenience stores can play a significant role in supporting community health initiatives and combating obesity-related challenges (Pérez-Ferrer et al. 2019). Collaborative efforts between store operators, policymakers, and public health authorities are essential in implementing effective management practices that benefit both businesses and consumers (Zhou et al. 2020). By addressing these challenges proactively, convenience stores can enhance their contribution to public health and economic development (Carrilho et al. 2019).

Despite the existing literature on the challenges faced by the convenience store sector, there remains a knowledge gap that this research aims to address. By proposing a production model based on Lean Manufacturing tools such as 5S, Kanban, Standardized Work, and Supplier Homologation, this study seeks to provide a comprehensive framework for improving operational efficiency and product quality in convenience stores. Drawing on the principles of Lean Manufacturing, which have been successfully applied in various industries, including retail, this model offers a systematic approach to addressing the specific challenges faced by convenience stores (Rodríguez-Guerra et al. 2022). By integrating Lean methodologies into store operations, operators can streamline processes, reduce waste, and enhance overall performance (Armendariz et al. 2022). This research contributes to filling the gap in literature by offering a practical and evidence-based solution to the management challenges prevalent in the convenience store sector (Cha & LEE 2020). Moreover, by emphasizing the importance of Lean practices in enhancing customer value and satisfaction, this study underscores the potential benefits of adopting a continuous improvement mindset in store management (Pérez-Ferrer et al. 2019). Through the implementation of Lean tools and practices, convenience stores can optimize their operations, minimize risks, and drive sustainable growth (Zhou et al. 2020). By bridging the gap between theory and practice, this research aims to empower convenience store operators with the knowledge and tools needed to overcome existing management challenges and thrive in an increasingly competitive market (Carrilho et al. 2019).

2. Literature Review

2.1 Lean Service Methodology in Inventory Management for Convenience Stores

Lean service methodology has been increasingly applied in various industries to enhance operational efficiency and improve customer satisfaction. In the context of inventory management in convenience stores, researchers have explored the implementation of Lean principles to streamline processes and reduce waste. For instance, Oktarian & Surjasa (2021) emphasize the impact of Lean on enhancing the quality of services, which can be extrapolated to inventory management practices in convenience stores. By adopting Lean principles like just-in-time inventory control, convenience stores can optimize stock levels to meet customer demand effectively. Similarly, Wang (2024) discusses how Lean inventory management practices can alleviate financing constraints, highlighting the financial benefits associated with implementing Lean methodologies in inventory management processes. Furthermore, Xu & Cao (2019) delve into optimal in-store inventory policies for retailers, shedding light on the importance of efficient inventory management strategies in enhancing overall operational performance. This body of research underscores the significance of Lean service methodology in revolutionizing inventory management practices for convenience stores, paving the way for enhanced operational efficiency and customer satisfaction.

2.2 Implementing 5S Methodology in Inventory Management for Convenience Stores

The 5S methodology, focusing on sorting, setting in order, systematic cleaning, standardizing, and sustaining, has been recognized for its effectiveness in enhancing workplace organization and efficiency. In the realm of inventory management for convenience stores, the application of the 5S methodology can lead to improved inventory control and operational effectiveness. Muñoz-Villamizar et al. (2019) highlight the importance of integrating Lean and green management practices, which can encompass the 5S methodology, in the agri-food sector to drive sustainability and operational excellence. By incorporating the principles of 5S, convenience stores can establish standardized processes for inventory handling, ensuring that items are systematically organized and easily accessible. This approach not only enhances inventory visibility but also contributes to a more efficient restocking process, ultimately improving customer service levels. Additionally, Singh et al. (2019) discuss the application of Lean thinking, including value stream mapping and Six Sigma, in managing industrial operations, showcasing the potential benefits of integrating Lean methodologies like 5S in optimizing processes and reducing operational inefficiencies. Therefore, the adoption of the 5S methodology in inventory management for convenience stores can significantly enhance operational productivity and customer satisfaction.

2.3 Utilizing KANBAN Methodology in Inventory Management for Convenience Stores

KANBAN methodology, originating from the Toyota Production System, focuses on visualizing workflow and optimizing inventory levels to support a smooth production process. When applied to inventory management in convenience stores, KANBAN methodology can play a pivotal role in ensuring efficient stock replenishment and minimizing excess inventory. Praharsi et al. (2021) explore the application of Lean Six Sigma and supply chain resilience in the maritime industry, demonstrating the effectiveness of Lean principles such as KANBAN in enhancing supply chain operations and responsiveness. By implementing KANBAN systems, convenience stores can establish visual cues to signal inventory levels, enabling timely restocking and reducing stockouts. This proactive approach aligns with the core principles of KANBAN, emphasizing the importance of just-in-time inventory management to meet customer demand effectively. Moreover, Mira and Kuşakçı (2022) discuss the significance of Lean service operations and management applications, underscoring the relevance of KANBAN methodology in optimizing service processes and enhancing operational efficiency. Therefore, integrating KANBAN methodology in inventory management practices for convenience stores can lead to streamlined operations and improved inventory control.

2.4 Enhancing Inventory Management with Standard Work Methodology in Convenience Stores

Standard Work methodology focuses on establishing standardized processes and best practices to drive operational consistency and efficiency. In the context of inventory management for convenience stores, the implementation of Standard Work methodology can lead to improved process reliability and inventory accuracy. Clemente-Pecho (2023) proposes improvements in warehouse management using Lean Warehousing methodology, which aligns with the principles of Standard Work to enhance service levels and distribution efficiency. By defining standard operating procedures for inventory handling, convenience stores can ensure uniformity in stock management practices, leading to reduced errors and enhanced productivity. Additionally, Bonamigo (2023) discusses Lean thinking in value co-creation, emphasizing the importance of recognizing opportunities and barriers to implementing Lean methodologies like Standard Work for service improvement. This highlights the need for convenience stores to establish standardized inventory management protocols to optimize operations and deliver consistent service to customers. Therefore,

integrating Standard Work methodology in inventory management processes can drive operational excellence and elevate the overall service quality in convenience stores.

2.5 Homologation of Suppliers in Inventory Management for Convenience Stores

The homologation of suppliers involves the process of selecting and approving suppliers based on predefined criteria to ensure quality and reliability in the supply chain. In the realm of inventory management for convenience stores, establishing strong supplier relationships through homologation can lead to enhanced inventory control and product availability. Gallego-García and García-García (2020) delve into market-oriented procurement planning, emphasizing the importance of supplier relationships in optimizing service levels and cost efficiency. By homologating suppliers, convenience stores can secure a consistent supply of products, reducing lead times and ensuring adequate inventory levels to meet customer demand. Furthermore, Hamadneh et al. (2022) explore the impact of inventory management and service strategy on service process improvement in the hospitality sector, highlighting the role of supplier management in enhancing service quality and operational performance. This underscores the significance of supplier homologation in inventory management for convenience stores to foster reliability in the supply chain and streamline inventory replenishment processes. Therefore, by implementing supplier homologation practices, convenience stores can strengthen their supply chain relationships and optimize inventory management practices for improved operational efficiency and customer satisfaction.

3. Methods

3.1 Basis of the Proposed Model

In Figure 1, the Lean Service Model for convenience stores was illustrated, emphasizing the integration of Lean Manufacturing philosophy to enhance product management. This model encompassed four key components aimed at reducing product losses and improving overall efficiency. The first component, 5S Methodology, focused on enhancing organization and efficiency within the store through systematic cleaning and structuring practices. The second component, Kanban Tool, aimed to optimize workflow by implementing visual management systems that ensured timely inventory replenishment and reduced waste. The third component, Standardized Work, sought to improve efficiency and consistency by establishing uniform procedures for routine tasks, thereby minimizing variations and errors. The final component, Supplier Certification, targeted supplier standardization and compliance, ensuring that all suppliers met predefined quality and delivery standards, which in turn contributed to the stability and reliability of the supply chain. Collectively, these components of the Lean Service Model were designed to foster a streamlined, efficient, and loss-resistant product management system within convenience stores, aligning with the overarching objectives of Lean Manufacturing to eliminate waste and enhance value creation for both the store and its customers.

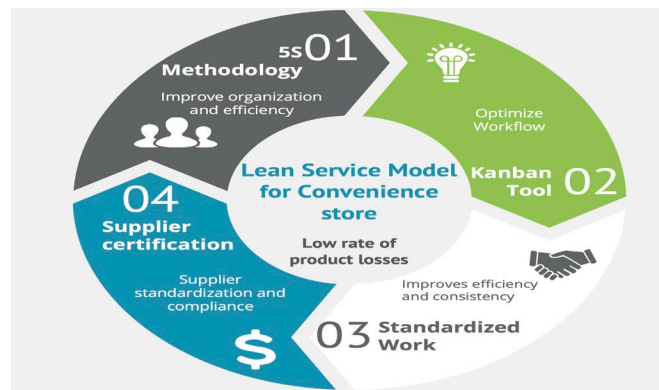


Figure 1. Proposed Model

3.2 Description of the model components

The Lean Service Model for convenience stores represented a significant contribution to the existing literature on Lean Manufacturing by adapting its principles to the retail sector. This model aimed to address common challenges in product management, such as inefficiency, inconsistency, and waste, by applying Lean philosophies like continuous improvement (Kaizen), just-in-time inventory management, and waste reduction. By incorporating these principles,

the model sought to create a streamlined and efficient operational framework that minimized product losses and maximized customer satisfaction. This approach was particularly relevant in the context of convenience stores, where rapid inventory turnover and high customer expectations necessitated robust and adaptable management practices.

C1: Enhancing Organization and Efficiency: The 5S Methodology

The first component of the Lean Service Model was the 5S Methodology, a foundational Lean tool focused on improving organization and efficiency through a systematic approach to workplace management. The 5S principles—Sort, Set in order, Shine, Standardize, and Sustain—were implemented to create a clean, organized, and efficient store environment. This methodology helped to eliminate clutter, streamline operations, and ensure that all necessary items were readily accessible. By improving the physical organization of the store, the 5S Methodology contributed to a more efficient workflow, reduced errors, and enhanced employee productivity. This alignment with Lean principles of eliminating waste and promoting continuous improvement provided a solid foundation for the other components of the model (Chiarini 2013; Gapp et al. 2008).

C2: Optimizing Workflow with the Kanban Tool

The second component, the Kanban Tool, aimed to optimize the workflow within the convenience store by implementing visual management techniques that facilitated just-in-time inventory management. Kanban, a Japanese term meaning "signboard" or "billboard," utilized visual signals to indicate when inventory needed replenishment, thus ensuring that products were ordered and stocked as needed. This approach minimized overstocking and understocking, leading to a more efficient and responsive inventory system. By promoting a pull-based inventory system, the Kanban Tool helped to reduce waste, improve inventory turnover, and enhance customer satisfaction by ensuring that popular products were always available (Liker, 2004; Hopp & Spearman 2004).

C3: Improving Efficiency and Consistency through Standardized Work

The third component, Standardized Work, focuses on establishing uniform procedures for routine tasks to improve efficiency and consistency in-store operations. Standardized Work involves documenting the best practices for performing tasks and training employees to follow these procedures. This approach minimized variations and errors, leading to more predictable and reliable operations. By ensuring that all employees perform tasks in the same way, Standardized Work contributed to a more cohesive and efficient work environment. This component was crucial for maintaining high-quality service and operational consistency, which were essential for meeting customer expectations and achieving business goals (Emiliani 2007; Imai 1986).

C4: Ensuring Supplier Standardization and Compliance: Supplier Certification

The final component, Supplier Certification, aimed at ensuring supplier standardization and compliance, was critical for maintaining the quality and reliability of the supply chain. Supplier Certification involved setting predefined quality and delivery standards that suppliers had to meet to be certified. This process ensured that all suppliers adhered to the same high standards, which contributed to the stability and reliability of the supply chain. By working with certified suppliers, convenience stores could reduce variability in product quality and delivery times, leading to more consistent and reliable operations. This component aligned with Lean principles of creating value for the customer by ensuring that all products met high-quality standards and were delivered on time (Handfield et al. 2005; Krause et al. 2007).

In conclusion, the Lean Service Model for convenience stores provided a comprehensive and systematic approach to improving product management by integrating Lean Manufacturing principles into retail operations. Each component of the model—5S Methodology, Kanban Tool, Standardized Work, and Supplier Certification—addressed specific challenges in product management and contributed to creating a streamlined, efficient, and loss-resistant operational framework. By minimizing waste, enhancing efficiency, and ensuring high standards of quality and reliability, the Lean Service Model aligned with the overarching objectives of Lean Manufacturing to create value for both the store and its customers. This model not only offered practical solutions for improving convenience store operations but also enriched the existing literature on Lean practices in the retail sector.

3.3 Model Indicators

To evaluate the effectiveness of the proposed convenience store service model, particular metrics were developed to track and manage its performance within the case study. These metrics provided a systematic method of performance

evaluation, ensuring that all essential facets of the production process were comprehensively measured and analyzed. This facilitated a detailed examination of the model's influence on reducing the rate of product losses.

5S Audits and Inspections: This indicator measures the frequency of audits and inspections conducted to maintain workplace organization and cleanliness under the 5S methodology.

$$\text{Audit and Inspection Score} = \frac{\text{Total Audits and Inspections}}{\text{Total Planned Audits and Inspections}} \times 100 \quad (1)$$

Non-Conforming Products: This indicator tracks the percentage of products that do not meet quality standards in a convenience store environment.

$$\text{Non-Conforming Product Rate} = \frac{\text{Number of Non-Conforming Products}}{\text{Total Products}} \times 100 \quad (2)$$

Work in Progress (WIP): This indicator measures the amount of work currently in progress within the Kanban system, reflecting process flow efficiency.

$$\text{WIP} = \text{Number of Work Items in Progress} \quad (3)$$

Expired Products: This indicator tracks the percentage of expired products, highlighting the effectiveness of standardized inventory management processes.

$$\text{Expired Product Rate} = \frac{\text{Number of Expired Products}}{\text{Total Products}} \times 100 \quad (4)$$

Employee Performance: This indicator measures the performance level of employees in a standardized work environment, indicating productivity and efficiency improvements.

$$\text{Employee Performance Rate} = \frac{\text{Employee Performance Score}}{\text{Maximum Performance Score}} \times 100 \quad (5)$$

Standardization Audits: This indicator measures the frequency of standardization audits conducted to ensure adherence to standardized procedures.

$$\text{Standardization Audit Score} = \frac{\text{Total Standardization Audits}}{\text{Total Planned Standardization Audits}} \times 100 \quad (6)$$

Homologation Evaluations: This indicator tracks the number of evaluations performed for supplier homologation, ensuring suppliers meet required standards.

$$\text{Supplier Homologation Evaluations} = \text{Number of Supplier Evaluations} \quad (7)$$

4. Validation

4.1 Initial Diagnosis

In Figure 2, the problem tree depicted summarized the diagnostic analysis conducted in the case study to identify the reasons and root causes behind the research problem. The primary issue highlighted was the high rate of product losses, which had a significant economic impact, amounting to 136,259 PEN per year, equivalent to 9.75% of the annual production cost. The diagnostic framework revealed that the case study had a product loss rate of 9.75%, considerably higher than the industry standard of 1.60%. The analysis identified low-quality products as the main

cause, contributing to 63% of the total product losses. This category was further broken down into root causes, with non-conformity products accounting for 39%, expired products for 35%, loss or theft of products for 20%, and overstock situations for 6%. Additionally, other unspecified factors contributed to the remaining 37% of the product losses. This structured approach provided a comprehensive understanding of the various factors affecting product losses and highlighted the areas needing improvement. The objective of this diagnostic was to pinpoint the critical issues and develop targeted strategies to mitigate product losses and enhance overall operational efficiency in the convenience store context.

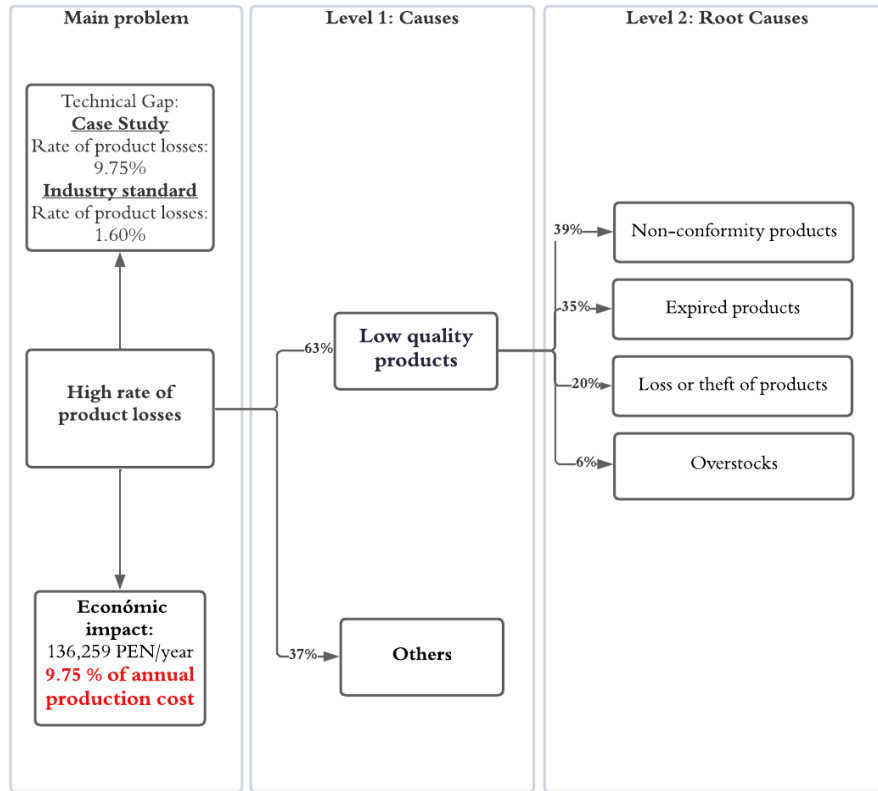


Figure 2. Problem Tree

4.2 Implementation of the model in the case study

Implementation Tool 5S

The implementation of the 5S tool in the company focused on improving the order and display of products in the convenience store, especially in the line of perishable products. The process began with the selection phase, where key areas for implementation were identified. Detailed observations of the work area were made, and the positioning of the products was determined, ensuring that they were kept in optimal conditions for their sale. The exposure of products in the display case was evaluated, recording the lifetime and durability of each one. This allowed the identification of products with higher output and those that showed more damage during the shift.

During the implementation phase, the necessary resources were secured for the effective implementation of the 5S methodology. Planning meetings were held, and a schedule of activities was developed based on the identified needs. In addition, extensive training was provided to the employees, focusing on the principles of the Lean philosophy and 5S methodology. This training included conducting internal audits to assess the performance of standardization and ensure adherence to new processes implemented.

The quantitative results of implementation showed significant improvement in several aspects. As shown in Table 1, staff satisfaction increased, and the order in the display of perishable products improved, which contributed to an

increase in business profitability. Measurement indicators reflected a reduction in the number of non-compliant products from 15% to 2.29%, and an increase in audit score from 2.15 to 3.37.

Table 1. Indicators of the implementation of 5S

Indicator	As-Is	To-Be	Results
5S Audit	2.15	3.2	3.37
Non-compliant product	15%	5%	2.29%

Implementation Tool Approval of Suppliers

The certification of suppliers was implemented with the aim of improving product quality through rigorous evaluation of suppliers. This process began with the selection of suppliers of the Fast-Food line, which were evaluated on their service capacity, quality certifications, product traceability, costs, delivery times, and penalties for non-compliance. A certification questionnaire was developed which suppliers were required to complete, providing detailed information on their processes and capabilities. The evaluation of the suppliers' responses allowed the company to select those that met the required standards, this resulted in a significant improvement in the quality of the products received. The quantitative data showed a reduction in the percentage of non-conforming products from 15% to 2.29%, The European Commission has published a report on the quality of the EU's food and feed products.

Table 2 classifies suppliers according to their performance into three categories: optimal suppliers (60%-100%, green), regular suppliers (40%-60%, yellow) and poor suppliers (0%-40%, red). This classification facilitates the quick assessment of supplier performance.

Table 2. Level of supplier measurement

Status	
60% - 100%	Optimal or ideal supplier
40% - 60%	Regular or Acceptable Supplier
0% - 40%	Supplier Discarded or Deficient

Implementation of the Standardization of Work Tool

The standardization of work in the company focused on establishing a clear and structured process to improve product control and tracking, especially in the fast-food line. The first phase of the process involved assessing the current condition of the store and identifying the products that should be monitored. It was determined that approximately 63% of the total store products belonged to the fast food line. The follow-up roles were assigned to the managers, attendants, and shop operators.

The main objective of standardization was to achieve continuous improvement, reduce variability in activities and increase quality indices. The implementation of this tool involved documenting processes through activity flows and activity sheets, ensuring that all tasks were carried out in a uniform manner. Internal audits were conducted to assess the performance of standardization, this resulted in an improvement of the performance of workers from 60% to 90% and a significant reduction in the percentage of products overdue from 11% to 0.56%.

Figure 3 outlines the steps involved in standardizing product monitoring and control in a convenience store. The process begins with segmenting product lines, defining the average lifespan for each product family, and establishing care practices. New control methods are communicated to staff, and periodic product revision schedules are set. The process ends with the actual revision of products, ensuring consistent quality and adherence to standards.

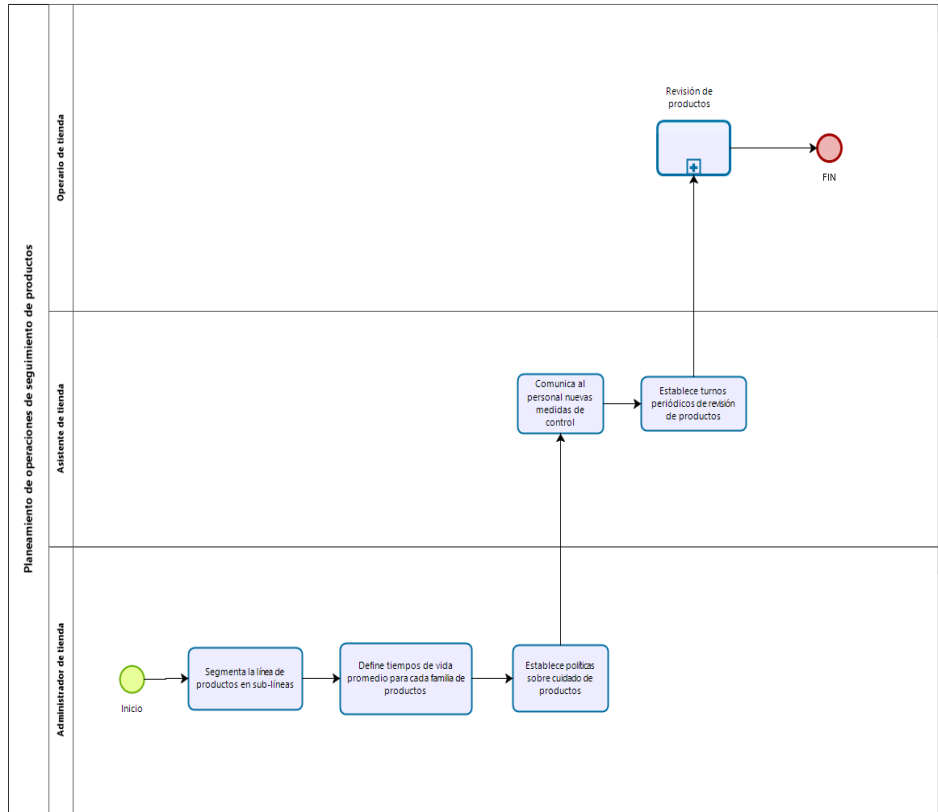


Figure 3. Standardization of the product monitoring and control process

Kanban implementation

The Kanban tool was implemented to improve work role management and inventory control by a visual method. The implementation began with the collection of information on operational functions and processes, using visual cues to outline short- and medium-term activities. This tool allowed us to set limits in the warehouse area, assigning specific spaces for each product line according to its arrival time.

The implementation of Kanban also included the development of visual cards and work manuals to guide daily activities. The quantitative data showed that the quantity of non-conforming products was reduced to 2.29% and efficiency in product distribution was improved. In addition, a demand-based replenishment system was established, ensuring that products were kept at optimal levels of inventory and improving the accuracy of purchase orders.

Figure 4 illustrates the implementation of the Kanban system in a convenience store. It shows two containers with arrows indicating the replacement cycle. One container has a signal indicating when to replace, visualizing the continuous flow of products.

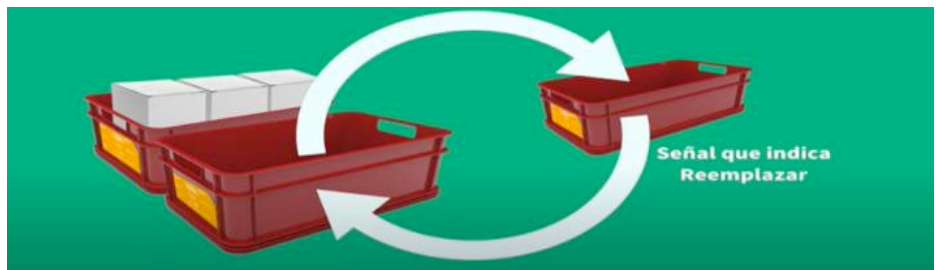


Figure 4. Design of replacement products

5. Results

In Table 3, the results of the validation of the proposed Lean service management model for convenience stores are shown. Key results indicated a 57% increase in audits and inspections, an 85% reduction in non-conforming products, a 20% decrease in WIP, a 95% reduction in expired products, and a 50% improvement in employee performance. Standardization audits increased by 15%, and supplier homologation evaluations showed a 20% increase.

Table 3. Results of the validation of the proposed model

Tool	Indicator	As-Is	To-Be	Result	Variation (%)
5S	Auditorias e inspecciones	2.15	3.2	3.37	57%
5S	Productos no conformes	15%	5%	2.29%	-85%
Kanban	WIP	7.98	6.5	6.39	-20%
Kanban	Productos no conformes	15%	5%	2.29%	-85%
Estandarización	Productos vencidos	11%	5%	0.56%	-95%
Estandarización	Desepeño de colaboradores	60%	80%	90%	50%
Estandarización	Auditoría de estandarización		65%	75%	15%
Homologación de proveedores	Evaluaciones realizadas	0	10	12	20%
Homologación de proveedores	Productos no conformes	15%	5%	2.29%	-85%

6. Conclusions

The main findings of this study demonstrate that the implementation of Lean Service tools in convenience stores can result in significant improvements in operational efficiency and the quality of the product. The 5S methodology reduced non-compliant products from 15% to 2.29% and increased the audit score from 2.15 to 3.37. The approval of suppliers improved the quality of products received, resulting in a reduction in non-compliant products from 15% to 2.29%. Labor standardization increased worker performance from 60% to 90% and reduced overdue products from 11% to 0.56%. The implementation of Kanban improved inventory replenishment accuracy and reduced non-compliant products to 2.29%.

The importance of this research lies in its ability to provide practical and evidence-based solutions to inventory management and product quality problems in retail convenience. By adopting Lean Service tools, these stores can not only improve their operational efficiency, but The European Commission has also recently published a report on the European Year of Training for Young People. This study highlights the relevance of continuous improvement practices and waste disposal in the retail environment, The European Commission has published a report on the European Union's research and development programmed in the field of education and training. The contributions of this research to the field of study are significant, as they extend the application of the Lean Service tools traditionally used in manufacturing, to the retail sector. This provides a theoretical and practical framework that other researchers and practitioners can use to address similar problems in their contexts. Integration of 5S, Kanban, work standardization and supplier approval provides a holistic approach to improve convenience store management, The European Commission has published a report on the European Union's research and development policy in the field of education.

The concluding observations indicate that, while the results are promising, more in-depth studies are needed to explore the application of these tools in different types of stores and geographical contexts. It is suggested to investigate the combination of Lean Service with other management methodologies to maximize benefits. In addition, it is recommended to evaluate the long-term impact of these implementations on the profitability and sustainability of the business. In conclusion, this research provides a solid foundation for future exploration and motivates researchers to continue developing innovative solutions that improve operational efficiency and the quality of the retail sector.

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Biographies

Aldo John Llanos-Huerta is an industrial engineer with a bachelor's degree. He has experience and expertise in supply chain, basically oriented to warehouses and transportation, where he has worked for about 15 years. He has worked in different areas of the industry in various transnational companies. When he finished university, his first experience was as a warehouse supervisor at Coca Cola and several years later, his last one was as a warehouse chief at Pluspetrol. He currently works as general manager of his own company. Seven years ago, he founded a school for children with the help of his wife, who is a teacher.

Roddy Gerardo Mendoza-Huerta holds a degree in Industrial Engineering with experience in the entertainment and recreation sector, focused on logistics and procurement. He owns a personal business related to the retail sale of food

and daily consumer products, where he manages the daily and strategic operations of the company. His experience includes supply chain optimization, efficient inventory management, and resource procurement.