

Service Model Based On Standardized Work And Supplier Management To Increase The NPS In A SME In The Restaurant Sector.

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Abstract

The growing boom of global gastronomy has been manifested in Lima with a significant increase in Japanese restaurants. Despite this growth, customer satisfaction, a key factor for success, presents challenges. In the particular case of a restaurant, the problem lies in a Net Promoter Score (NPS) of -2%, considerably lower than the industry average (60%). This discrepancy, mainly motivated by the quality of the food, poses the challenge of raising the NPS to the 60% standard. To address this challenge, a two-pronged approach is proposed: standardized work and supplier management. The first ensures consistent processes that guarantee quality consistency, while the second ensures the excellence of the ingredients used. The validation of this approach was carried out through a pilot test, based on surveys of 385 customers. The implementation of the model yielded significant improvements: an increase in NPS to 62.5%, thus surpassing the industry average. Additionally, the restaurant achieved a Customer Satisfaction Score of 75% for food quality and 81% for waiting time. These results demonstrate the effectiveness of the model and its techniques, showcasing its ability to solve the identified problem and improve customer satisfaction.

Keywords

Standardized work, Supplier management, Restaurant, Net Promoter Score, Customer satisfaction.

1. Introduction

Throughout the years, the gastronomy industry has experienced constant growth, and Lima, Peru, has not been an exception (INEI 2022). In this context, Japanese restaurants have increased their presence in the city, with customer satisfaction being a key factor for the success and profitability of these businesses (Central Reserve Bank of Peru 2020). The problem identified in this study is an NPS (Net Promoter Score) lower than 60% in a Japanese restaurant in Lima, indicating significant customer dissatisfaction (Upson 2020; Reichheld 2003). This situation arises in a contextual framework where Peruvian cuisine is recognized globally and regionally, creating high expectations for quality and service (INEI 2010).

The importance of addressing customer dissatisfaction lies in its direct impact on customer loyalty and the profitability of gastronomic businesses (Ochoa 2018; Gestión 2019). Despite the industry's efforts, such as implementing customer service technologies like robots in restaurants (Jain et al., 2023), and planning material requirements under uncertain delivery times (Diaz et al. 2016), there are still differences in local realities that require specific solutions. Additionally, previous studies have demonstrated the significance of supplier selection and supply chain management in customer satisfaction (Sarache Castro et al. 2009; Lau et al. 2016).

The motivation for this research stems from the need to address the issue of NPS below 60% in a Japanese restaurant in Lima, providing a significant contribution to the local industry. The proposal is based on a comprehensive analysis of the factors influencing customer satisfaction and the implementation of strategies and improvements focused on

these factors. The main objective is to increase the NPS, leading to higher customer satisfaction and, consequently, greater success and profitability for the restaurant under study.

1.1 Problem Analysis

To evaluate the level of customer satisfaction, the Net Promoter Score (NPS) method is used. It involves asking the consumer the question, "On a scale from 1 to 10, how likely are you to recommend us to a friend or colleague?" The percentage of promoters (scoring 9-10) is then subtracted from the percentage of detractors (scoring 0-6) (Reichheld 2003). The standard NPS for a restaurant is 60% (Upson 2020). Figure 1 compares the restaurant's NPS during 2022 with the standard.

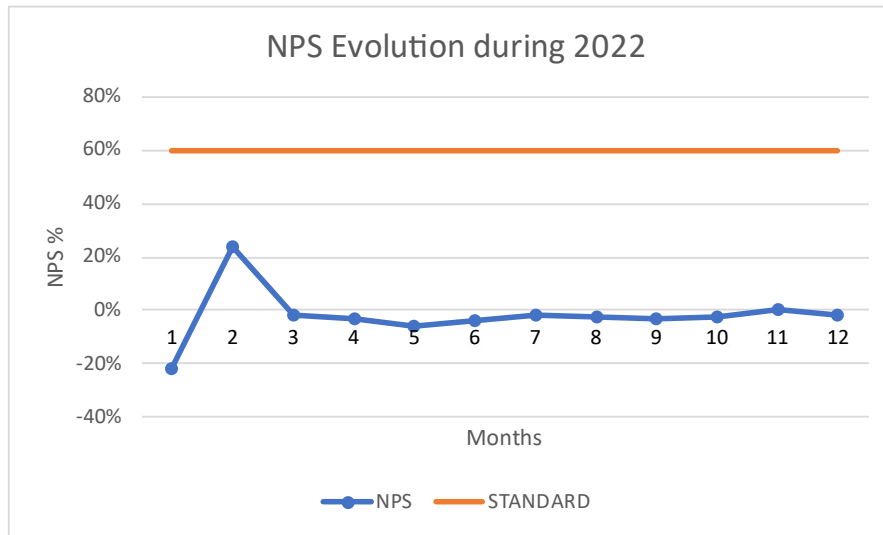


Figure 1. NPS evolution during 2022

The technical gap is the difference between the current problem and the industry standard. The company under study currently has an NPS of -2%, while the industry standard is 60%. Therefore, the technical gap is 62%. According to Marsden et al. (2005), for every percentage point increase in NPS, sales grow by 0.15%. In other words, the improvement margin would increase sales by 9.3% ($62 \times 0.15\%$). If the company's net sales in 2022 were S/. 1,529,893, we have an improvement margin of S/. 142,280.

The process to intervene is the quality of the food since, according to JL Consultores, in 2017, 67% of people would not return to a restaurant if they had a bad experience (Ochoa 2018). The same study conducted in 2018 resulted in 71% of people not returning to a restaurant due to the same problem (Gestión 2019). This indicates that the quality of a restaurant is becoming an increasingly determining factor.

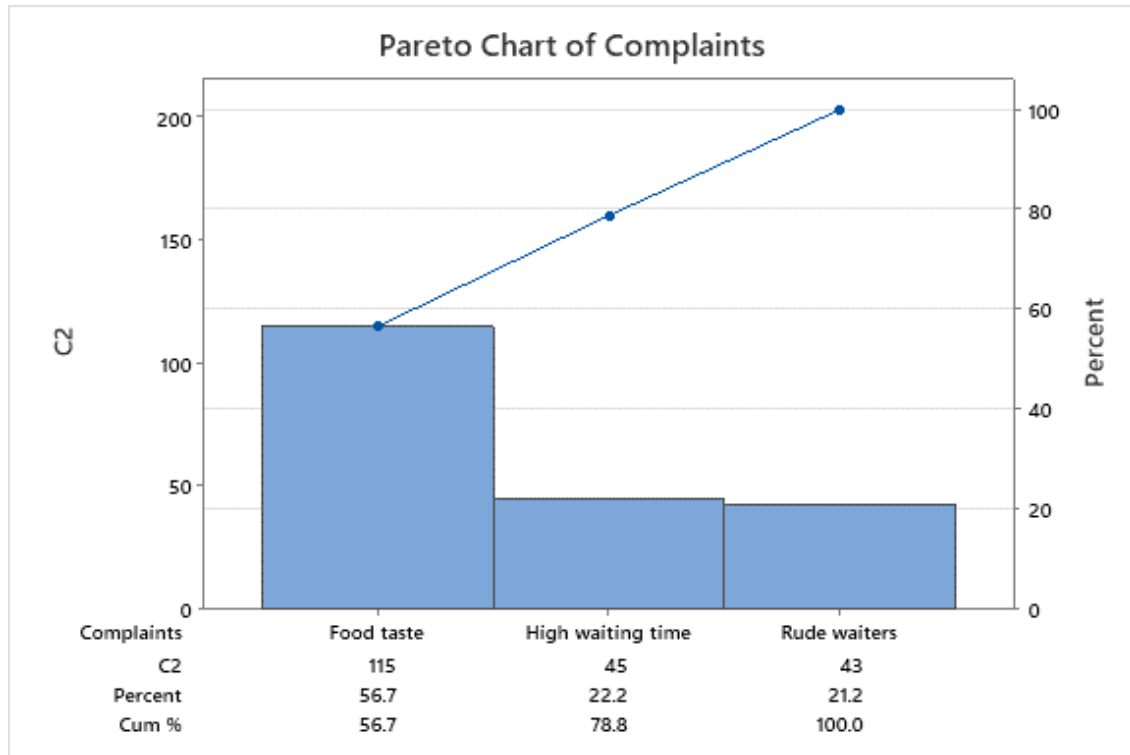


Figure 2. Pareto Chart of the complaints

According to customer reviews, the frequent complaints about the service quality shown in Figure 2 were analyzed to identify the main reasons behind them.

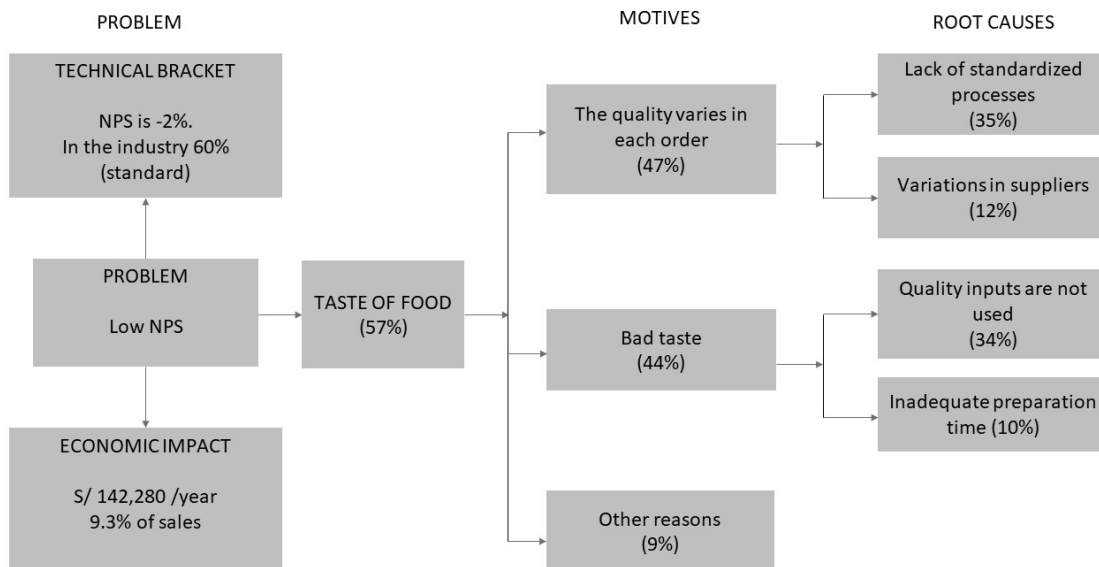


Figure 3. Problem tree

After conducting a problem tree analysis, shown in Figure 3, to examine the low customer satisfaction in the restaurant due to the poor quality of the food, it can be concluded that there are various root causes, such as lack of standardization

in their dishes and low-quality ingredients. These causes are interconnected and lead to several negative consequences for the restaurant, including customer loss, declining sales, and a negative online reputation. Addressing these root causes is essential to improve customer satisfaction and ensure the continuity of the business.

Finally, the key performance indicators (KPIs) of the problem were presented in Table 1. to compare the current situation with the target. The NPS is an indicator that measures customer satisfaction with the restaurant. The industry standard was set as the objective. The CSAT is an indicator that measures customer satisfaction regarding specific aspects. In this case, we will measure satisfaction with the food and waiting time.

Table 1. KPI's

Indicator	Current situation	Goal
NPS	-2%	60%
CSAT of the food	53%	75%
CSAT of the waiting time	62%	80%

1.1 Objectives

The study aims to demonstrate that applying the service model based on Standardized Work and Supplier Management will increase the customer satisfaction of the restaurant studied. The objective is to increase the current -2% NPS to the standard of the sector, which is 60%.

2. Literature Review

2.1 Standardized work in restaurants

Standardizing work can be the starting point for introducing other efficient tools and effective business management before moving towards additional goals, such as design optimization (Manzano Ramirez and Gisbert Soler 2016; Montañes-Rufino et al. 2019). Furthermore, its scope encompasses various areas, not only limited to production processes but also advantageous in improving administrative procedures (Costales Vargas 2016; Taylor 2008; Cardoso et al. 2018), which implies attractive benefits for the company, such as cost reduction, employee and customer satisfaction, and even serving as an approach for training (Dugarte 2013; Lucero Figueroa 2015).

However, it is crucial to exercise caution when implementing it as its impact may vary depending on the region due to cultural factors (Vera and Trujillo, 2017; Rodriguez-Lopez et al. 2018), and it requires constant monitoring of progress (Viera Manzo et al. 2020), for which recognized indicators derived from documents like food regulations or ISO standards are commonly employed (Montañes-Rufino et al. 2019; Viera Manzo et al. 2020).

2.2 Supplier management in restaurants

Supplier management in a restaurant plays a crucial role in ensuring efficient and reliable supply of raw materials and necessary products for daily operations. To optimize this process, it is recommended to apply industrial engineering tools that enable proper supplier selection. The use of the MOORA Method and hierarchical analysis provides an objective approach to evaluating different criteria such as product quality, delivery times, costs, and supplier responsiveness (García et al. 2010; Gómez and Cabrera 2008). These tools help establish priorities and weights in decision-making, thereby improving supplier selection decision-making.

In addition to selection, supplier management involves maintaining a strong and collaborative relationship with them. This includes establishing performance indicators and conducting periodic evaluations to ensure that suppliers meet established standards. The implementation of these industrial engineering tools contributes to the optimization of the supply chain and the achievement of restaurant objectives, including cost reduction and improved product quality (Hernandez and Navajas 2018; Pacheco et al. 2019).

It is important to mention that each restaurant has its own specific needs and requirements. Therefore, the application of industrial engineering tools in supplier management should be adapted to the particular situation of each establishment. The use of these tools allows for more informed and strategic decision-making, thus ensuring efficient supplier management in the gastronomic industry (Alzate Rendón 2015).

2.3 Customer satisfaction in restaurants

Currently, service companies are increasingly recognizing the importance of ensuring customer satisfaction, as this can make a competitive difference in the market (Nagano et al. 2019; Huallpa Tapia et al. 2019). Therefore, it is essential for companies to strive for improving the quality of their services, even if they offer an efficient service that meets customers' payment expectations (Nainggolan et al. 2022; Suarez-Barraza et al. 2021; Torlak et al. 2019). It is evident that providing poor service will result in a bad reputation among customers, although this can be counteracted through an effective complaint management system (Deng et al. 2013; Bradley and Wang 2022; Barlan-Espino 2017). However, it is important to note that achieving 100% customer satisfaction is unrealistic due to the demographic diversity in society, which makes this goal unattainable (Ramos-Alfonso et al. 2016).

2.4 Standardized work and supplier management in restaurants

In the development of this research, an exhaustive investigation was conducted to obtain the necessary information to support and substantiate the topic addressed. However, it should be noted that during the search process, enough sources specifically addressing all the sought-after aspects was not found. In this situation, the most relevant and reliable sources available were chosen, ensuring that they provided the necessary information to support the claims and arguments presented in this work. Although every effort was made to obtain a broad range of sources, it is important to recognize that the lack of access to certain resources and the limitation of available information may have influenced the final selection.

The integration of supplier management and work standards in a restaurant provides a powerful combination to improve the quality and efficiency of the supply chain. By applying these methodologies together, a more precise selection of suppliers is achieved, ensuring they meet the established standards, and internal processes are optimized, reducing costs and increasing customer satisfaction (Vera and Trujillo 2017; Rodriguez-Lopez et al. 2018; Viera Manzo et al. 2020). This integration promotes more effective supply chain management in the gastronomic industry and contributes to the long-term success of the restaurant.

It is important to note that, despite the limitation in the number of sources used, a rigorous analysis has been conducted, and the best available sources have been worked with to ensure the quality and validity of the results presented in this thesis. The importance of future research that can complement and expand the existing knowledge base in this field is recognized.

3. Methods

The current research has generated a value proposition by utilizing various tools analyzed in the state of the art. The main objective of this study is to address the core problem and seek to increase customer satisfaction in the restaurant. Therefore, we aim to explore different tools, models, and methodologies that can tackle this common issue in the industry. In the existing literature, standardized work stands out as a widely recognized technique to address the identified problem, while supplier management is also proposed as another measure to implement in this study. Thus, it becomes evident that there is still much to discover in terms of the diverse benefits and synergies each of these approaches can bring.

The proposed model is based on the techniques of standardized work and supplier management to enhance food quality and thus increase customer satisfaction. To achieve this, appropriate inputs are needed for the current study, starting with requesting satisfaction surveys, the list of suppliers, and the criteria used to select them, as well as recording food preparation details such as preparation time, ingredient lists, quantity of outputs, number of returned orders, and preparation procedures. Additionally, the current evaluation of the case under study, as well as the analysis of the problems identified within the current context, are also part of the considerations, as they are included in the problem analysis process that led to the identification of the problem, its motives, and root causes.

After analyzing the collected data, the proposal's development begins by implementing a supplier selection model for key ingredients in the open bar (sushi rice, fish, seafood, wings). This model is based on the Analytical Hierarchy Process (AHP) as a methodology for supplier selection. AHP is an effective and widely supported approach for addressing multi-criteria problems, considering both quantitative and qualitative factors. The main objective is to achieve an optimal selection of suppliers by balancing the different factors involved in decision-making. The study is grounded in relevant theoretical sources and uses expert input to identify the most impactful suppliers.

Next, standardized work will be applied in the dish preparation to identify actions for the new process and determine its capabilities. This is done with the purpose of increasing the quality of the dishes while maintaining the same quality standard in each order.

Lastly, once the tools have been applied, the indicators of the implemented proposal are evaluated to contrast them with the initial situation of the case study. In this way, the obtained results are presented, and an evaluation is conducted to determine if the established objectives have been achieved.

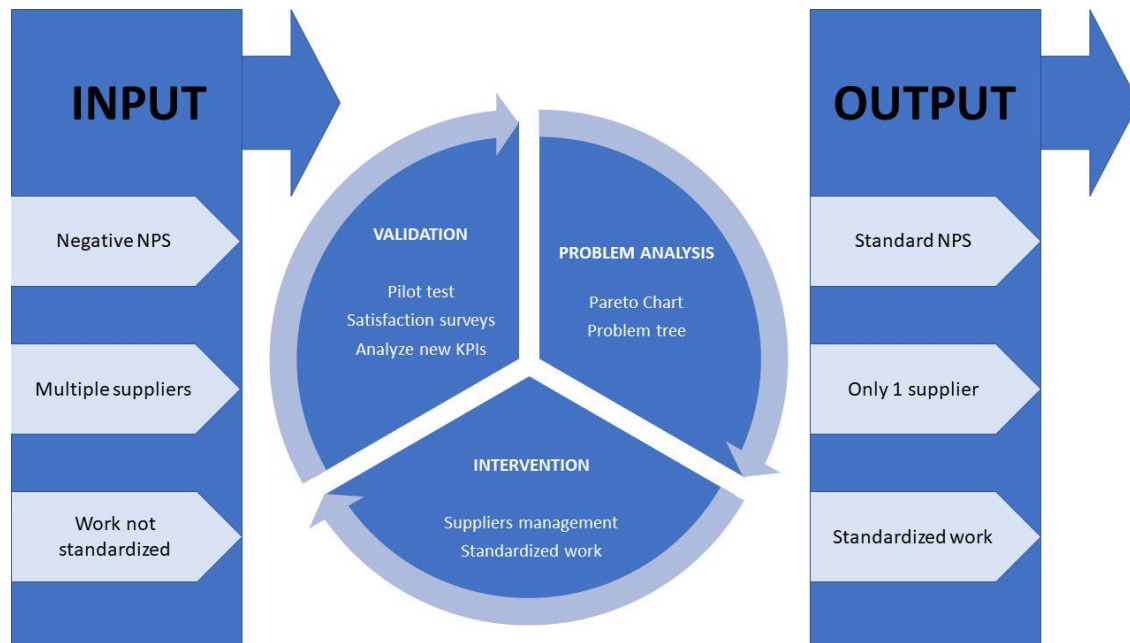


Figure 4. Model proposed

The proposed model shown in Figure 4 consists of three components, which are detailed below.

3.1 Problem Analysis

In the third component of the model, a comprehensive analysis of the identified problem in product standardization and supplier management in restaurant contexts will be conducted. To address this analysis, tools such as Value Stream Mapping (VSM), Problem Tree Analysis, and customer complaint surveys using the Pareto Diagram will be employed. The use of Value Stream Mapping will enable a detailed visualization and understanding of the value flow in food preparation processes and the supply chain in restaurants. By identifying value-added activities and those that generate waste or delays, inefficiencies and areas for improvement in product standardization can be pinpointed. This will lead to process optimization, reducing waiting times, improving quality, and streamlining production, thereby directly impacting supplier management by ensuring a consistent and high-quality supply.

Furthermore, the customer satisfaction survey and the Pareto Diagram will be utilized. The survey will collect qualitative information on the most common customer complaints. By analyzing the responses, the most frequent problems will be identified and prioritized. The Pareto Diagram will be used to visualize and analyze the frequency and relative impact of each identified problem in the survey, focusing efforts on critical areas for improvement.

To conclude the analysis, the Problem Tree will be utilized as an analytical tool to understand the root causes of the identified problems in product standardization and supplier management. By identifying the problems and their relationships, the contributing factors to the current challenges can be structurally visualized. This will enable the development of effective solutions and the design of strategies to address the underlying causes of the identified problems, ultimately improving customer satisfaction.

The application of Value Stream Mapping, Problem Tree Analysis, and the Pareto Diagram in the analysis of the problem of low customer satisfaction in a restaurant will provide a clear insight into existing challenges and allow the

identification of areas with the greatest impact on customer satisfaction. This information will help implement effective solutions, establish consistent quality standards, optimize the supply chain, and ensure efficient supplier management in the restaurant, thus enhancing the customer experience and business success.

3.2 Intervention

In the second component of the model, product standardization and proper supplier management in the gastronomic industry are addressed. The importance of establishing clear standards in product preparation, specifically in sushi rice and maki preparation, where there is currently a lack of consistent measurements and weights affecting the continuity and standardized process of the final dishes, is recognized.

To address this problem, implementing standardization techniques is proposed, allowing for precise measurements and weights, appropriate cooking times, and detailed steps in rice and maki preparation. This will ensure uniformity in product quality and improve customer satisfaction by delivering consistent dishes on each occasion.

Additionally, the focus will be on proper supplier management through the application of the Analytical Hierarchy Process (AHP), an effective methodology for optimal supplier selection by balancing different factors involved in decision-making. This will establish a solid foundation for evaluating and selecting suppliers who meet established quality standards, delivery times, and costs.

The integration of product standardization and proper supplier management will contribute to improving product quality and ensuring continuity in the supply chain in the gastronomic industry.

3.3 Validation of the proposed model

In the third component of the model, a validation process will be conducted to assess the effectiveness of the interventions implemented in product standardization and supplier management in restaurants. This will be carried out through a pilot test with the analysis of new key performance indicators (KPIs) and customer satisfaction surveys. The new KPIs will provide objective information on the performance of standardized processes and supplier management in terms of quality, efficiency, and compliance with established standards. These indicators will allow evaluating whether the implemented interventions are achieving the expected results and meeting established standards.

Additionally, customer satisfaction surveys will be conducted to gather feedback on product quality and the dining experience at the restaurant. These surveys will provide valuable information to identify areas for improvement and detect potential problems in product standardization and supplier management.

Analyzing the new KPIs and customer satisfaction surveys will validate the interventions, adjust processes if necessary, and optimize product quality. It will also help strengthen supplier relationships and ensure a satisfactory experience for customers at the restaurant.

3.4 Indicators of the Proposed Model

For this research, the following indicators displayed in Table 2 will be used to evaluate progress and verify improvements:

Table 2. Indicators of the proposed model

Indicator	Definition	Use
%Net Promoter Score (NPS)	$= \frac{\text{Promoters}}{\text{Total}} - \frac{\text{Detractors}}{\text{Total}} * 100$	Measures customer satisfaction with the restaurant, classifying them into 3 groups: Promoters, Passives, and Detractors.
%Customer Satisfaction Score (CSAT) of the food	$= \frac{\text{Very satisfied customers} + \text{Satisfied customers}}{\text{Total Customers}} * 100$	Measures customer satisfaction regarding the food, classifying them into 3 groups: Very Satisfied Customers, Satisfied Customers, and Neutral/Not Satisfied Customers.
%Customer Satisfaction Score (CSAT) of the waiting time	$= \frac{\text{Very satisfied customers} + \text{Satisfied customers}}{\text{Total Customers}} * 100$	Measures customer satisfaction with the waiting time in relation to food quality.

4. Data Collection

The data collection consisted of obtaining and measuring information from surveys and online reviews about the restaurant and interviews from the employees to receive information on the activities and techniques carried out in the restaurant's kitchen, as well as the Pareto to determine the most critical problems in the area and the problem tree to identify the main causes.

5. Results and Discussion

5.1 Numerical Results

Table 3. Indicators before vs after the implementation

Indicator	Current	Goal	Result	Improvement
NPS	-2%	60%	62.5%	64.5%
CSAT of the food	53%	75%	75%	22%
CSAT of the waiting time	62%	80%	81%	19%

Table 3 shows the indicators from before and after the implementation of the proposed model. As you can see, the results were beyond the goals, showing a big improvement and that the implementation worked.

5.2 Graphical Results

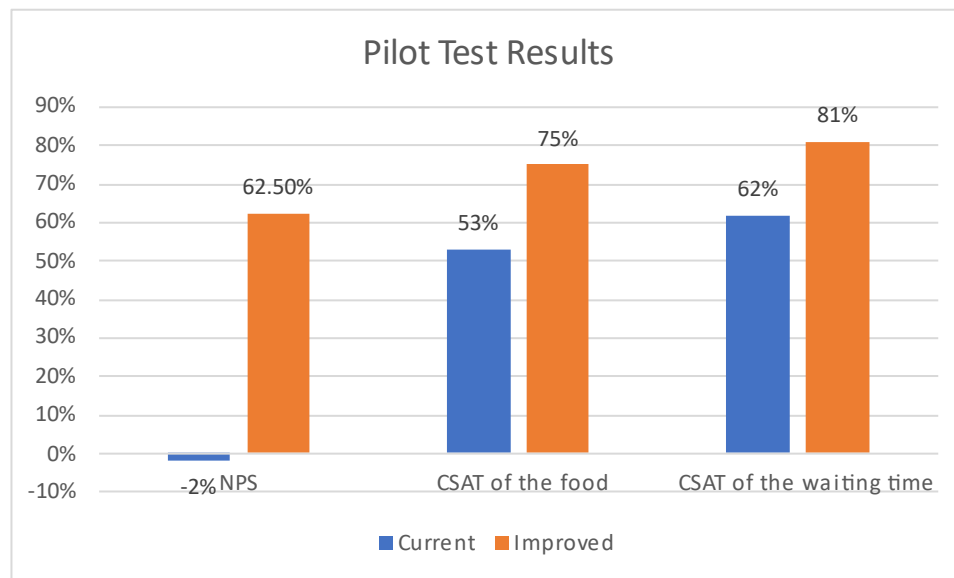


Figure 5. Pilot test results

Figure 5 shows the results from the pilot test after implementing the supplier management and standardized work. As you can see, there was a big improvement and the goals were achieved.

5.3 Proposed Improvements

During Phase 1, first, the manager was trained on the new method of supplier selection and evaluation, explaining the matrix created to assess which supplier to choose. Additionally, it was ensured that whenever there is a new potential supplier, the manager can input their data into the matrix to determine if switching suppliers is worthwhile. Next, the ranking of factors was conducted to determine the weight of each factor for supplier selection and evaluation, based on the restaurant manager's preferences.

Afterward, face-off tables were created for multiples suppliers to select the most suitable one. Once the most suitable supplier was chosen, a pilot test was conducted with the selected suppliers for one week. During this period, customers were asked to respond to a survey, and a total of 65 responses were collected.

In Phase 2, the kitchen staff underwent training on the improvements to be made and the new processes for sushi rice preparation, wings preparation, and maki preparation. They were also taught how to use the new measuring instruments.

Once the training was completed, a simulation of the new workflow was carried out before implementing it with the actual ingredients. It's important to mention that the entire process was monitored to ensure strict adherence to the new procedures.

Phase 3 started once it was confirmed that the staff fully understood the new procedures, so they began cooking while applying them.

Regarding the sushi rice, it is prepared four times a day (according to demand), using 7kg of rice each time. One pot was prepared using the proposed method, and another pot was prepared using the current method. This provided 58 rice balls for 58 maki rolls, using 7kg of rice in one pot. Since customers often order multiple rounds of maki, they were served one round using the current method and the second round using the proposed method. At the end of the second round, they were asked to complete a survey to compare the taste and quality of each.

As for the wings, the pilot test was conducted over two days: on the first day, the wings were prepared using the current method, and on the second day, they were prepared using the new method. The results were compared, and each customer was asked to fill out a survey regarding the wings when they requested the bill. Finally, the results of the surveys conducted during the pilot test were analyzed. A total of 20 people were surveyed each day.

5.4 Validation

For this case study, the validation of the proposal's implementation will be carried out through a pilot test. This method was chosen because the objective of the improvements is to enhance and maintain the quality of the food, which can only be verified through its consumption.

During the pilot test, customers will be provided with surveys after finishing their meals to evaluate, analyze, and compare the results.

To determine the optimal sample size for the pilot test, the formula for sample size for an infinite population was used. The maximum acceptable estimation error ("e") was set at 5%, and a confidence level of 95% was considered ($Z=1.96$), assuming a data heterogeneity of 50% (p and $q = 0.5$). This calculation yielded a result of 385 individuals required for the sample. However, due to limitations such as budget constraints, daily customer count, time, space, and company policies, a much smaller sample size will be used for the pilot test. Later, this smaller sample will be extrapolated to obtain the desired 385-person sample size.

6. Conclusion

According to the results obtained in the pilot test, it can be concluded that with the tools used, the NPS was increased to 62.5%, slightly above the industry standard of 60%. This means that customers were satisfied and would return, in addition to recommending the restaurant to others, resulting in an increase in new customers. Therefore, it is recommended that the restaurant prepares to meet higher demand.

Another problem that was solved is the quality of the food, which was the main complaint of customers. This is reflected in the food CSAT, which was 53% before the implementation of the improvement, but increased to 75% after the improvement, meaning that 3 out of 4 customers are satisfied with the quality of the food.

On the other hand, waiting time is one of the main issues that customers complained about, with 62% of customers being satisfied with it. Although the waiting times have not decreased, now 80% of customers are satisfied with the waiting time because they don't mind waiting a little longer in exchange for a good-quality product.

It is important to note that this study was focused solely on the quality of the food, as there are other factors such as customer service and ambiance that influence customers' decisions.

Finally, it is recommended to continue with surveys to gather more feedback and obtain even more precise data, as the pilot test had its limitations. Additionally, it is recommended to create a Best Practices Manual (BPM) to ensure the preservation of the implemented improvements and for future employees.

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