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# **LEAN SERVICE MODEL TO REDUCE THE CANCELLATION RATE OF CARDS IN PERUVIAN RETAIL BANKING**

Tesis para optar el Título Profesional de Ingeniero Industrial

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# Lean Service Model to Reduce the Cancellation Rate of Cards in Peruvian Retail Banking

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**Abstract**—The banking services industry has been experiencing, for several years, continuous changes and adaptation in the way they maintain contact with their customers. Financial institutions must submit their processes to changes and adjustments according to the new habits and communication channels maintained by their clients to ensure competitiveness within the industry. This work aims to develop an analysis of the indicators for the lean implementation process in a client attendance Peruvian bank. Maintain a level of service and employ friendly digital tools. An essential part of these considerations is service level management and customer communication. This paper proposes a method that uses various tools such as Lean service, standardization of times in processes, digital marketing plan and Kanban Board, which aims to improve the key indicator of card cancellations of 74% of submitted applications. After implementing the proposed model, this article shows that it is possible to increase the number of account withholdings by a considerable percentage.

**Index Terms**—Lean service, digital marketing plan, Kanban board, service in banks, treatment of claims, transactions rejected

## I. INTRODUCTION

The service sector is one of the most changing, competitive, and closer to the customer markets than, for example, the manufacturing industry. And among the different service industries, the banking sector is one of the most outstanding since it has a large number of transactions, volume and, in addition, it has complex products that are constantly renewed [1]. In this research, we seek to highlight the great importance of applying Lean tools in financial institutions since it increases the company's economic indicators and each country in which this methodology is applied [2]. By 2020, the financial sector contributed 9.8% to Peruvian GDP (Gross Domestic Product) and positioned itself as the sector with the highest percentage of contribution [3]. Therefore, the use of tools that contribute to this, such as Lean Service, helps increase the business environment level and ensure profitability in the medium and long term, generating a boost for efficient and profitable service management strategies without losing the quality offered to the customer. However, the road to quality service in the banking sector runs into a significant factor: customer loyalty; The participation of the client provides an additional perspective, and

this has not yet been considered in the study of the behavior of bank clients, which is hugely relevant. [4]. These drawbacks show that the financial sector has possible methodologies to enhance its productivity, providing the client with all the resources to acquire benefits.

According to the literature review, retention at higher levels becomes key. It is the industry's opportunity to increase the rate of clients in the sector [5]. Demonetization processes and a high investment in technological changes by banks at a global level are the financial sector's current state. [6]. In addition to the real need to offer more personalized services, elevating the superior customer experience [7]. Lean Service induces the creation of products and services with high value in understanding the needs of the end customer and identifying the factors that motivate them. These challenges have also been observed in various Lean Service applications in other regions of the world, such as India. In their research, author Hakkeem noted that banks must focus on awareness of diverse age groups and the factors that contribute to customer satisfaction [8]. The deployment and use of advanced innovations in the banking sector, such as the commitment to Lean Service, contribute significantly to improving efficiency and stimulate establishing new and more robust processes to ensure sustainable economic growth rates [9].

After a literature review and considering the importance of reaching higher levels of customer service in the financial sector that increase customer satisfaction and create benefits for companies that work in this sector. The approaches addressed are: in customer service, standardization of service times, digital marketing to improve communication between the financial institution and its customers, as well as the application of agile and lean tools, separately. However, studies in the financial sector are scarce, especially the application of lean service. Therefore, it is decided to meet the need for a comprehensive model for all the above.

## II. LITERATURE REVIEWS

### A. Lean Service

This methodology seeks to eliminate any activity that does not provide any value (waste). Waste types are divided into nine

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categories: overproduction, overprocessing, waiting, unnecessary transportation, unnecessary movement, excess inventory, uninvited employees, and imperfections. [10]. Different tools are used to identify activities that deliver or do not value: 5S, VSM (Value Stream Mapping), Workload balancing, Group Technology and others [2]. Thanks to the access to managers from different areas and sectors, together with the comparison of indicators, a resounding increase in the effectiveness of its workers is verified [11]. The application of Lean Service, promises the improvement of the profitability of the capital employed and profit per worker [2].

### B. Agile: Kanban Board

This tool helps us to visualize and promote work processes [12]. The effectiveness of Kanban application obtained 91% effectiveness in the strategic results of the company, such as efficiency, leadership, collaboration, sustainability, and agility. [13] Kanban practices: determining WiP limits and distributing functions between teams, thanks to the implementation of the visualization of the teams and the accumulation of products on electronic whiteboards. [14]

### C. Marketing Digital

Studies have pointed to the inability of large corporate brands to build engaging communities and increase customer engagement online [15]. At the same time, it was discovered that the good use of social networks influences consumer awareness. “Brand Trust” improves customer loyalty and experience. This supports that banks can retain customers and improve profitability with a good brand, credibility, and quality digital banking. [16]

The periodicity of the bank's interactions and communications with its clients positively impacts their behavior.[17]

### D. Lean Service (&Agile)

The concrete performance of using Lean Service in a company demonstrated significant cost savings and a noticeable improvement in process capability in the short and long term. In another case study, it was possible to reduce costs by 25% to 60% less, comparing Lean and Agile tools' decoupled and integrated design [18]. The results show that applying the LSS (Lean Six Sigma) approach achieves a successful improvement of service activities [19].

## III. METHODOLOGY

### A. Model Basis

Tools such as Lean Service, Kanban Boards, digital marketing applied to a communication plan and the standardization of processes provide a more robust character to the model proposed in this document. Since it seeks to alleviate the main difficulties on most possible fronts in those that the client may experience disappointment with the service provided

by the financial institution. That is why an exhaustive review of the literature was carried out to achieve the selection of the tools explained below.

A comparative matrix is presented between the proposals found in the literature review and this article.

TABLE I. COMPARISON MATRIX OF THE PROPOSAL COMPONENTS VS THE LITERATURE REVIEWS

Components	Stabilization of the process	Digital marketing Plan	Control and Follow up
Sum, F. F., Car, I., Paula, D., & Tortorella, G. (2018).	Lean Service (5S)		
Shaikh, A., Glavee-Geo, R., Karjaluoto, H. (2017)	Process Standarization		
V. Padmanabhan. (2018)			Kanban board
Wang, P., McCarthy, B. (2021)		Communication Plan	
<b>Proposal</b>	Lean Service and process standardization	Communication Plan	Kanban Board

### B. Proposed Model

The proposed model is based on Agile tools, Kanban Board, Digital Marketing, Standardization of the work method and Lean Service.

The inputs are recognized as: historical data of the productive processes of the financial entity. The outputs: improved activities, and new procedures and implementation of new indicators to constantly measure progress.

The development of the proposal begins with the lean service tool since this will allow the execution of the other selected tools, eradicating the activities that do not add value to the outputs. Together with the agile element, the Kanban Board, it will be done to reduce the traceability problems of service tickets created by customers, due to non-conformities with the service and failures of the digital system.

Next, improvements will be implemented in the external communication process complemented with digital marketing. What is sought is to fill the gaps in which the client, with little information about the service he acquires. Finally, the standardization of processes will allow to establish deadlines for customer service and their respective complaints, ensuring that this lapse is reduced.

### C. Model Components

#### 1) Component 1: Stabilization of the process

The objective of phase 1 is to implement the Lean Service methodology and its tools in the company. Starting with the application of the 5S method, whose main objective is order and discipline at work.

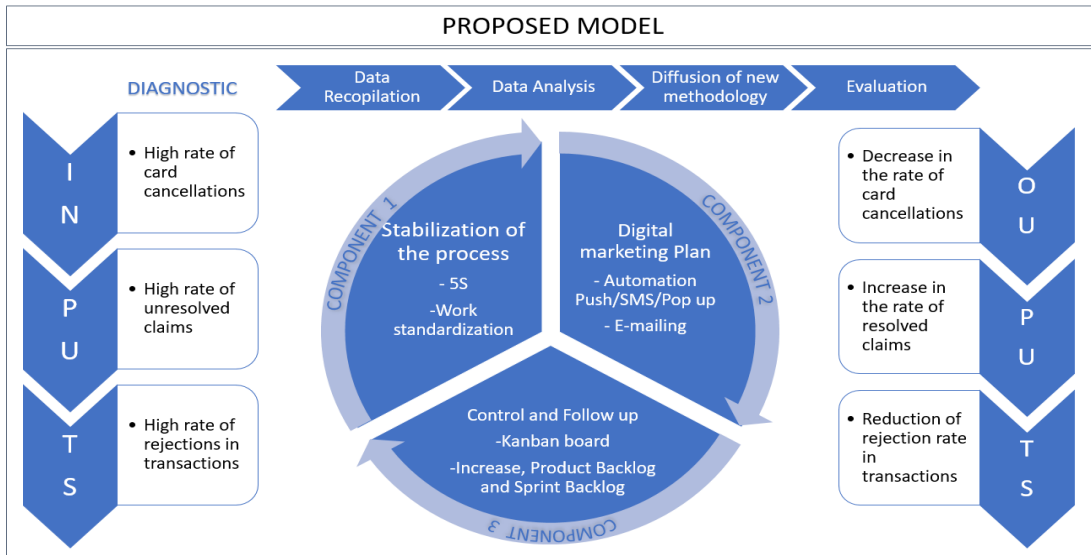


Fig. 1. General view of the Service.

The main thing will be to classify the data obtained in terms of card cancellation requests and cases in which there is no possibility of retention will be eliminated. Afterward, an organizational system will be created in which a criticality score will be assigned, it will be separated into groups with priority for the company and direct contact groups will be assigned and offer quick solutions. Processes that hinder and delay retention will be discarded. The members in charge of this retention process must commit to their work.

### 2) Component 2: Digital marketing plan

Therefore, all the information that the partner must know will be collected, both basic information on transactions, as well as data and tutorials that are not at the partner's hand. In addition, a monthly communication schedule will be created in social networks and direct and personalized communication.

The base of partners who have constant rejections and claims (potential cancellations) will be followed up to act early and offer them not only the information they require to solve their problems.

### 3) Component 3: Control and follow up

For phase 3, the Kanban Board tool will be implemented, it provides a global vision of the work carried out and the monitoring of the team. In this sense, the first action will be to reorganize the flow of activities, establish a system for identifying the different types of work to be carried out, such as handling customer complaints. The claims status will be placed on the board, and the actions taken to date will be indicated with different post-it colors.

To carry out this flow effectively, it is extremely important to set limits on processing capacity and times. Therefore, there must be continuous monitoring that indicates when the flow is paralyzed for a long time or when any of the actions taken to improve them are not working.

### D. Indicators

- % Account Cancellation: Therefore, it is vital to determine it and measure the impact of the proposed model.

Objective: Reduce the rate of card cancellations by 10%.

$$\% CC = \frac{\#Accounts\ that\ finally\ cancel}{\#Accounts\ that\ ask\ to\ cancel} * 100$$

- % of Unattended Claims during the call: Many of these clients make the decision to cancel their account with the company.

Objective: Increase by 10% in the rate of complaints resolved.

$$\% RSA = \frac{\#Claims\ without\ quick\ solutions}{\#Claims\ entered} * 100$$

- Time for account retention: Should be as short as possible to avoid inconvenience and that the client decides to cancel their account.

Objective: Reduce the rejection rate in transactions by 10%.

$$\% \text{Hours of retention} = \frac{\#Hours\ of\ retention}{Total\ time\ of\ the\ retention\ process}$$

- % Clients who do not accept the offered benefits: when the client is requesting the cancellation of the card, a series of offers must be made to achieve retention.

Objective: Reduce the rejection rate in transactions by 10%.

$$\% CDAOB = \frac{\#Clients\ who\ do\ not\ accept\ the\ offered\ benefits}{\#Clients\ who\ are\ offered\ benefits} * 100$$

#### IV. VALIDATION

##### A. Initial Diagnosis

When analyzing the data collected at the end of 2019, it was obtained that 74% of the reasons for card cancellations are based on a bad procedure in digital sales, which is directly related to the digitization of partners with the cancellations of said accounts. In addition, digital rejections refer exactly to the bounce and impediment that the system generates. This means that the process of each transaction does not have the fluidity expected by both parties. Approximately 40% of the transactions are rejected. This percentage is considered high. The main consequence of the different negative gaps in the process and the dissatisfaction that these generate in customers is the cancellation of the account. There is a report prior to the cancellation of the account. The reasons for this decision by the client are diverse, some of a personal or economic nature; however, we find a high cancellation rate associated with the deficit process.

##### B. Validation Design and Comparison with the Initial Diagnosis

After going through the four proposed model components, its validation is presented. The current situation of the financial institution is compiled in the measurement of KPIs (Key Performance Indicator) and their analysis, all this within the first component with the use of 5S as an operative tool and VSM [20], as a diagnosis tool. The result is a robust diagnosis of the main problems and causes. The second component uses the Digital Marketing Plan tool, which includes an appropriate communication plan for the partner to reduce the level of misinformation. These communications have been carried out automatically with the help of a robot.

Finally, in component 3 Kanban is used to ensure the follow-up of customer requests. This improves the time for the system

to provide a solution and response by 10% compared to the original.

TABLE II. INDICATORS RESULT

Indicator	Current	Expectations
Number of cancellations	68.52%	60%
Long time for account retention	1.84 hours	1.5 hours
Requests not attended during the call	78.25%	60%
Clients who do not accept the offered benefits	12.76%	10%
5s auditory	35	50
Effectiveness of pop-ups, emailing and notifications	No defined	50.00%

##### C. Improvement - Proposal Simulation

The simulation of the proposed model was carried out in the Arena software to rectify and quantitatively validate its efficiency. The standardization of the times in each activity of the process was developed and resulted in an improvement in the classification of the complexity of the tasks and less time spent. In addition to this, 5s tool was implemented, reducing the time of the whole process which is made by the operators and receptionist calls, this thanks to the order and cleanliness established in the workstations

The amount of 120 repetitions were carried out for a simulation of a working day (8 hours). The simulation of the process is represented in Fig. 2.

The above-mentioned tools were implemented, and the result obtained is shown in Table III where a comparison of the current and actual situation is made.

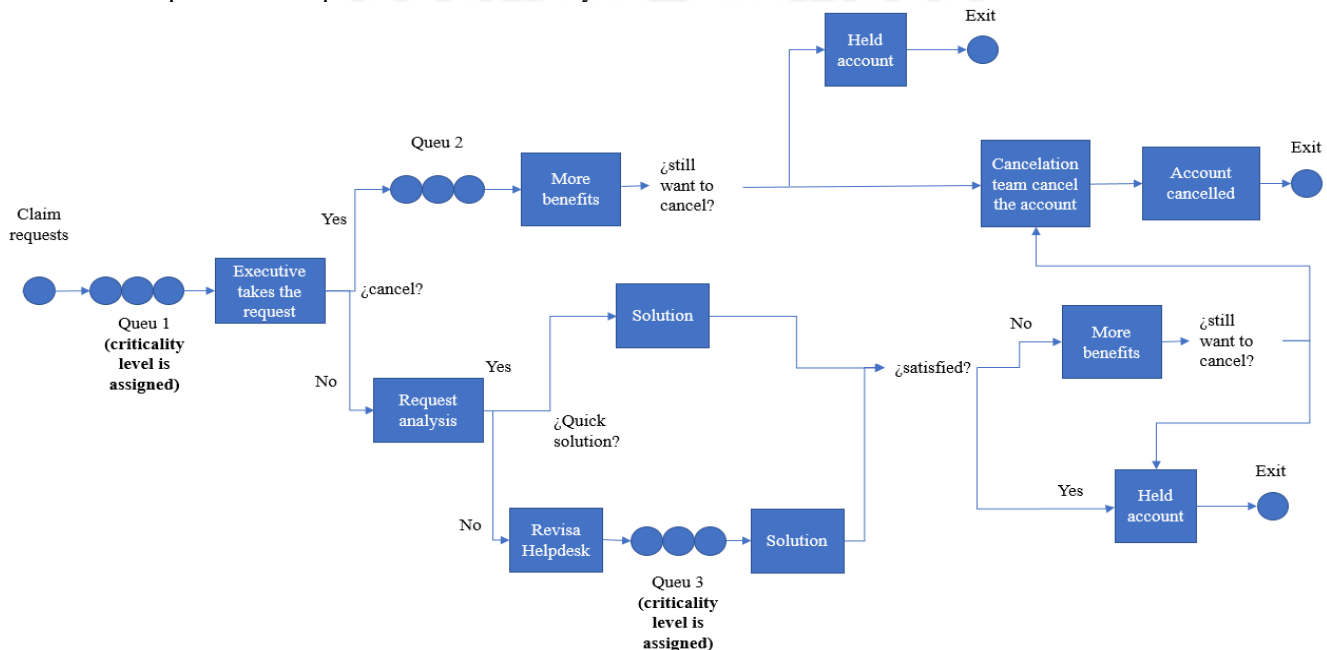


Fig 2. Representation of the improve system.

TABLE III. SIMULATION CURRENT VS IMPROVED SITUACION

Indicator	Current	Improved
Number of cancellations	68.52%	42.33%
Long time for account retention	1.84 hours	1.16 hours
Requests not attended during the call	78.25%	60.69%
Clients who do not accept the offered benefits	12.76%	11.44%
5s auditory	35	45
Effectiveness of pop ups, emailing and notifications	No defined	35.33%

Thanks to the implementation model proposed and the established KPI's it was possible to see a great reduction of time for account retention in 37% less.

## V. DISCUSSION

The time values in the customer retention process were 1 hour and 84 minutes at the beginning, and thanks to the implementation of the Lean tools analyzed, this time was reduced by 47%. Al-Omiri et al. [12] also applied Lean tools in their model and achieved a time reduction of 37%. Therefore, it can be stated that the result obtained in the present study is coherent and much more optimal than that of the literature. And in another study, a 33% reduction in the time taken in the process is observed, this result after applying LSS. [19]

## VI. CONCLUSION

Thanks to the analysis carried out and the integration of tools, it was possible to reflect the expected results in the simulation model of the Arena software, thus reducing the cancellation rate by 38%.

Along with this, it was also possible to reduce the time of the retention process, which lasted 1 hour and 84 minutes on average, and with the help of the simulation it was reduced to 1 hour and 37 minutes, that is, approximately 37%.

In addition, there were requests that were not solved in the first instance, which caused a congestion in the attention. For this reason, when implementing the model, it was possible to decrease 78.25% requests without attending to the first moment by 60.69%.

Likewise, thanks to the optimization of times, it was possible to reduce the indicator of clients who did not accept the benefits by 10% and, therefore, the percentage of retained clients improved.

Finally, we consider it pertinent to extend the investigation and collect larger data for a simulation of processes in other companies or sectors to obtain more diverse results.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

## AUTHORS CONTRIBUTIONS

Jimena Poma-Roca carried out the study of the state of art and the evaluation of the lean tools to be applied. Maria Fernanda Escudero-Arrascue applied the situation of the studied

company and connected it with those tools. Both of them analyzed the data, drafted the manuscript and supervised the research. All the authors had approved the final version.

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