# Application of the BPM-Kraljic Model to Improve Supply Management in an Agroindustrial MSE

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## Abstract

Studies present insufficient information on working models within the purchasing area using the BPM tool for agro-industrial companies, especially in Latin America, which aim to improve performance and optimize the processes of an organization. For this reason, the need for this research arises. This scientific article presents a model to improve supply management. The BPM methodology was proposed to standardize internal processes and the Kraljic matrix, a tool used in purchasing management to classify materials and optimize purchase planning. The level of compliance within the purchasing area did not satisfy the established policies, reaching only 55.96% and generating a gap in the savings goal of approximately S/.500,000. This causes an imbalance at the administrative and operational level due to a lack of general standardization of the processes. This triggered problems at the macro level, such as lack of communication between areas, inefficient operations, and economic losses. The proposal that was carried out covers different areas, such as a harmonization within the administrative processes to reduce time variability and logistics focused on the efficient management of purchases and classification of materials. It was possible to prove the hypothesis; it is feasible to reach 85% of the target scope by restructuring the areas and generating strategies. The simulation could prove the optimization of resources by up to 60% and reduce processing times.

## Keywords
Business Process Management (BPM), Agro-industrial, Supply Chain, Kraljic.

## 1. Introduction
Peru has positioned itself as the leader in blueberry exports worldwide, thanks to an exponential production growth on its coast. Peru increased its blueberry exports by 27.5%, to 155,600 tons, widening the gap with Chile. (EAST FRUIT, 2021). However, past studies reveal that companies put all their focus on production but then lose profitability by selling poorly (marketing) or paying dearly for inputs, labor, or rents (cost efficiency). That is why purchasing management aims at acquiring the goods and services that the company needs, ensuring the supply of the required quantities in terms of time, quality, and price. However, the entity's supply chain must be well-identified to achieve efficient purchasing management. (Universidad Nacional de Luján, 2014).

According to the literature, the problem may be due to different factors, as is the case of an agro-industrial company in northern Peru, where purchasing management is not measurable; data on purchase orders and items generated, service times, or values for purchases, among others, are not analyzed. (Ochoa et al., 2017) Likewise, a problem that could be evidenced is the waste of economies of scale, which results in the loss of opportunity to save up to 15% of its expenses and at the same time incurring excess transportation costs since orders are issued separately, thus generating a freight cost for each one. (Benites et al. 2020). This can lead to cost overruns, overruns, and poor-quality work. The same problem was also reflected in another case study, which showed that reducing the time and procedures in the procurement process made it possible to save approximately S/. 450,000. (Gohin, F. C. and Linares, 2014).

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Considering what was mentioned above, a case study was chosen to make a deeper analysis regarding the problems found within the purchasing area concerning sourcing and procurement, which stands out the level of compliance below the company's target generating monetary losses of almost S/.500,000. To face the problem described before, it was decided to use an integrated model, BPM, and Kraljic; using control metrics such as KPIs for compliance with supply dates, unplanned purchases, and lead time. (Alvarado et al. 2019). It was developed based on successful cases within the literature review that presented difficulties similar to those shown, generating an impact and contribution to scientific studies.

The research in question proposes a new logistic model applied to the purchasing area to increase the compliance with supply dates, emphasizing on reducing the average times of internal processes.

### 1.1 Objectives

The main objective of this research is to optimize the supply process by using the BPM methodology and Kraljic tool in an agro-industrial MSE. For this purpose, the variables of supply management will be evaluated, measured, and identified.

Identify the variables of the supply management process.
Measure the variables of the supply management process.
Measure the impact of the supply management process concerning the company's other operations.
Implement the Kraljic matrix in the supply chain to generate savings within the supply chain.
Implement the BPM methodology in the supply chain to reduce the waiting times.

In addition, the following hypothesis is proposed:
Applying the Kraljic-BPM integrated model improves supply management in an agro-industrial company.
Specific hypothesis:
The implementation of the Kraljic matrix generates savings in the supply chain.
The application of the BPM methodology allows for reducing the waiting times of the purchase process activities.

## 2. Literature Review

### 2.1 Purchase and supply management

Purchasing and Supply Management (PSM) needs to improve its efficiency and effectiveness continuously. One possible way to specifically address efficiency targets is to outsource parts of the purchasing process. (Bals & Turkulainen, 2017). In terms of the responsibility to implement sustainable supply network practices in an organizational environment, the purchasing and supply management function stands out for its critical role in managing its supply base by creating financial value (e.g., Monczka et al.,2016). The procurement objective is to streamline the raw material warehouse workflow, generating excessive production lead time and unplanned downtime. In addition, supplier approval increases procurement efficiency and provides strategic value in evaluating and planning raw materials to ensure efficient supply. In one case scenario from the literature review, a strategic lean procurement model based on 5S and supplier approval was designed to improve losses of approximately 38.8% variation in industrial production. Finally, another research case showed that SPSM competencies are versatile and can also be relevant to other SMP issues and topics. This finding certainly contributes to research on current and future competency requirements in PSM. Bals et al. (2019) evaluated how PSM competencies have evolved over the last ten years according to the framework established by Tassabehji and Moorhouse (2008). Based on a literature review on PSM competencies and based on interviews with practitioners, the authors identified three main new competence areas as being relevant for future research

### 2.2 Business Process Management (BPM)

Implementing the project-based management (BPM) discipline aims to improve performance and optimize an organization's processes. According to the literature, this impacts improving productivity, operating costs, service quality, and efficiency. Some studies reveal the importance of recognizing that not all organizations that implement BPM processes work the same way, so that results may vary. DeToro and McCabe (1997) emphasize that "one of the most effective ways to begin business process management is to inventory the process organization " to identify the points to be evaluated. Delgadillo (2018) demonstrated within his studies applied to purchasing management that it is possible to decrease times by 64% for stock replenishment processes and, in turn, manage to decline by 38% the time of attention to local purchase orders. As a final result, it improved the average service level by 23%, generating an

economic impact reduction of approximately USD 69,000. Additionally, Castillo et al. (2021) confirm that its main contribution is the management of the agricultural chain through the BPM model approach. This, in addition, was adapted to organizations in the early stages, in the case of organizations that have achieved some process improvement results and organizations that have implemented the model and are in constant continuous improvement.

Among the studies, the use of Key Performance Indicators was tested to measure results more accurately and less empirically. Other studies show that the BPM tool can be an asset and an exciting practice for evaluating businesses with undefined business methodologies, extensive and lacking communication between them (Alvarado et al. 2019; Hadasch et al. 2016).

### 2.3 Kraljic matrix in purchasing management

The Kraljic Matrix (KPM) has multiple purchasing strategies and supply management benefits. In particular, improved product quality, increased operational flexibility, shorter lead time, and cost reduction are some of the advantages provided by the developed tool (Bianchini et al., 2019). The professionals agreed that such methodology is an efficient management tool for developing purchasing strategies and can be easily performed regularly. They also recognized that the importance of the exercise is independent of any particular project and its consequent "full compatibility" with the business (Ferreira and Kharlamov 2012). Certain negotiation styles are better suited to some aspects of the procurement portfolio (Kang et al. 2018). This matrix has improved the competence and benefits of procurement activities (Jing et al. 2021). Also, as a result of implementing it, a reduction of 60% in MCT and 22 days in a process with wasted time were achieved over six months (Seth and Rastogi, 2019). The previous cycle time was 80 days, and the new cycle time after implementing supplier rationalization was approximately 32 days (Seth and Rastogi, 2019). Another study states that the model can be continuously developed because it is practical and straightforward so that professionals or companies in other sectors can quickly implement it. (Zemmy and Setiyowati, 2021) KPM is considered a key factor for supplier selection, revealing the lack of efficient management solutions regarding purchasing in this particular sector. (Ferreira and Kharlamov 2012).

The BPM methodology allows us to automate and optimize our processes within the organization, and the Kraljic tool focuses on improving the function of supplying materials. By merging them, we can obtain a necessary improvement that focuses on reducing waiting times, generating a solid network of suppliers, increasing the level of service within the area, and eliminating bottlenecks reflected in significant economic impacts.

## 3. Methods

The research had a mixed approach, which involved collecting, analyzing, and interpreting qualitative and quantitative data, thus generating inferences. Collins, Onwuegbuzie, and Sutton (2006) identified four motives for using mixed methods research as Enrichment of the sample, greater fidelity of the instrument, Integrity of the treatment or intervention, ensuring its reliability, and Optimizing meanings.

Business Process Management (BPM) is an approach to analyzing and improving a company's business processes continuously. It seeks consistent results aligned with strategic objectives. Several methods of applying BPM focus on specific aspects of the company, not meeting all its needs. (Zani et al., 2021). The Kraljic Matrix, also known as KPM, has multiple purchasing strategies and supply management benefits. Specifically, improved product quality, increased operational flexibility, shorter lead time, and cost reduction are some of the advantages provided by the developed tool. (Bianchini et al. 2019). Additionally, this matrix has improved the competence and benefits of procurement activities (Jing et al., 2021). This is considered a key factor for supplier selection, revealing the lack of efficient management solutions regarding procurement in this particular sector. (Ferreira and Kharlamov, 2012). Montgomery et al. (2018) propose the following criteria for classifying the factors studied in the Kraljic, BPM, and Lean Logistics methodologies.

**Reliability**: relationship and benefits obtained from suppliers, securing credit.
**Quality**: durability, reliability, innovation in components
**Availability**: volume and modification flexibility, technological capability, lost products
**Cost**: Purchase cost, inventory.
**Time**: Speed of delivery and reliability, speed of development, processing.
**Profit impact**: Impact on profitability, the criticality of purchase, value/cost of acquisition, bids, and contracts. Therefore, the following factors will be evaluated:

Table 1. Table showing the chosen factors

| FACTORS | |
|---|---|
| Purchasing planning | Supplier's concentration |
| | Quantity of tenders or contracts |
| | Rejected purchase orders |
| Purchase and supply management | PO generation time performance |
| | Credit given by suppliers |
| Supply management | Supplier's delivery time |
| Process standarization | Elimination of bottlenecks |
| | Load work |
| | Standarized processes |

The Business Process Management (BPM), Kraljic Matrix, and Lean Logistics models were alternative solutions (table 1). These were used in different successful cases in the logistics area to improve various problems; they proved to be efficient and beneficial in the cases studied; each one with its particular approach came to give the best results that could be obtained (Table 2).

Table 2. Table showing the factor ranking tool used for the solution alternatives

| FACTORS | | BPM | | LEAN LOGISTICS | | KRALJIC | |
|---|---|---|---|---|---|---|---|
| | | CALIF | PONDER | CALIF | PONDER | CALIF | PONDER |
| Supplier's concentration | **9%** | 6 | 0.55 | 4 | 0.36 | 8 | 0.73 |
| Quantity of tenders or contracts | **18%** | 8 | 1.45 | 4 | 0.73 | 8 | 1.45 |
| Rejected purchase orders | **11%** | 8 | 0.91 | 6 | 0.68 | 8 | 0.91 |
| PO generation time performance | **14%** | 10 | 1.36 | 8 | 1.09 | 4 | 0.55 |
| Supplier credit | **5%** | 4 | 0.18 | 4 | 0.18 | 6 | 0.27 |
| Supplier's delivery time | **7%** | 4 | 0.27 | 8 | 0.55 | 4 | 0.27 |
| Elimination of bottlenecks | **16%** | 6 | 0.95 | 8 | 1.27 | 6 | 0.95 |
| Workload | **5%** | 10 | 0.45 | 8 | 0.36 | 10 | 0.45 |
| Standardized processes | **16%** | 10 | 1.59 | 6 | 0.95 | 6 | 0.95 |
| TOTAL | **100%** | | **7.73** | | 6.18 | | **6.55** |

The Kraljic and BPM methodologies were found to have the most significant impact on strategic purchasing planning and process standardization in the research, with 39% and 36%, respectively.

## 4. Data Collection

In the case study of an agribusiness MSE, a gap was identified concerning the goal established by many companies in the industry, giving a compliance percentage of 55.96% based on its policy of approving purchase orders in less than four days to speed up the process and satisfy users. In another case reviewed, it was proposed to use benchmark levels to measure the level of savings from purchases so that a change within the company could be evidenced. This gap was reflected in the savings report for the year 2020 since only 13% was achieved without meeting the minimum 15% that was a policy, resulting in a gap of almost US$500,000. This includes savings in purchasing fertilizers, pesticides, packaging materials, crop inputs, miscellaneous office materials items, and essential services.

Data collection by area was started. The number of purchase orders, total amount spent on purchase orders, and average purchase order generation time were selected. Then the regions in which the average purchase order generation time was less than 11 days were eliminated since this is the maximum time a purchase order can be generated as a company policy (table 3).

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Table 3. Table showing data recollection

| AREA | RANGE | | | | | | AVERAGE |
|---|---|---|---|---|---|---|---|
| | PO | | AMOUNT $ | | TIME | | |
| | >=100 | 5 | >=1 M | 5 | >=40d | 5 | |
| | 51 - 99 | 3 | 100K - 999K | 3 | 11d - 39d | 3 | |
| | <=50 | 1 | <=99K | 1 | <=10d | 1 | |
| CULTIVE | 5 | | 5 | | 5 | | 4.33 |
| STORAGE | 1 | | 1 | | 1 | | 1.67 |
| LOGISTICS OPERATIONS | 1 | | 1 | | 1 | | 2.33 |
| NURSERY GARDEN | 3 | | 3 | | 3 | | 3.00 |
| HUMAN RESOURCES | 1 | | 1 | | 1 | | 2.33 |
| INDUSTRIAL PLANT | 3 | | 3 | | 3 | | 3.00 |
| SYSTEMS (INFORMATION AND COMMUNICATION TECHNOLOGIES) | 1 | | 1 | | 1 | | 1.67 |
| SALES (COMERCIAL) | 3 | | 3 | | 3 | | 3.00 |
| PURCHASE | 1 | | 1 | | 1 | | 2.33 |
| PROYECTS | 3 | | 3 | | 3 | | 3.67 |
| QUALITY CONTROL | 1 | | 1 | | 1 | | 1.67 |
| SECURITY AND HEALTH AT WORK | 1 | | 1 | | 1 | | 1.00 |
| RESEARCH, DEVELOPMENT AND INNOVATION | 1 | | 1 | | 1 | | 1.00 |
| GENERAL MANAGEMENT AND FINANCES | 1 | | 1 | | 1 | | 2.33 |
| MAINTENANCE | 1 | | 1 | | 1 | | 1.00 |
| SANITY | 1 | | 1 | | 1 | | 1.00 |
| IRRIGATION | 1 | | 1 | | 1 | | 1.00 |
| COMPTROLLER | 1 | | 1 | | 1 | | 1.00 |

As a next step, a Pareto diagram was made to see which areas would be chosen for analysis in the Kraljic matrix (figure 1).

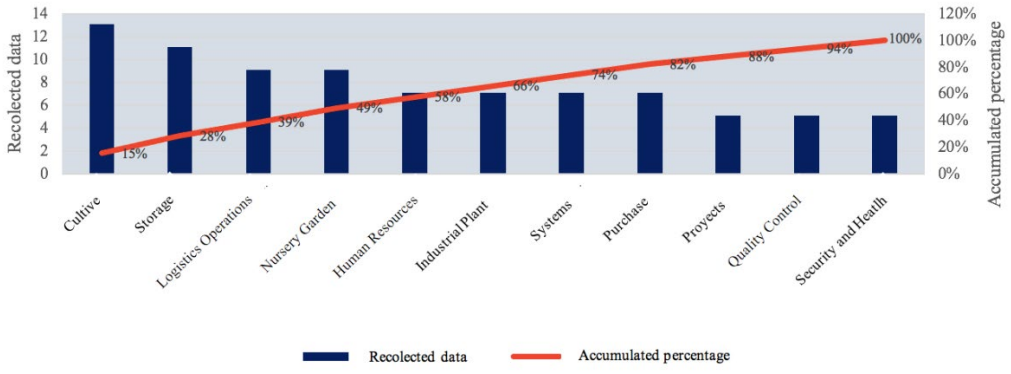


Figure 1. Pareto Diagram (by areas)

## 5. Results and Discussion

As a result of the matrix, there were four areas with high supply risk: purchasing, plant, HR, and cultivation. That is why we thought of implementing solutions linked to strategic alliances and creating a contingency plan to ensure supplies. The leading solution to be implemented will be the creation of tenders and contracts in all possible areas, starting with those with a high supply risk. In the case study, a bidding process was carried out for fertilizers and pesticides, which resulted in savings of 16.66% of all purchases for the campaign. On the other hand, we reviewed the savings in the most relevant area according to the Kraljic matrix, the cultivation area, which currently has a savings of 10.05% without any bidding.

On the other hand, after identifying each task and the parameters, we began to simulate the current situation to determine the bottlenecks which are not generating value. Two scenarios were simulated, the current situation and the process improvement. The Purchase Generation process had 161 instances initiated and 78 completed satisfactorily within 60 days. This resulted in a compliance rate of only 48%.

### 5.1 Numerical Results

We characterized the purchasing process with its average times, number of orders, and personnel assigned to the task within one year.

In this phase, the operational processes are deployed by finding the company's sub-processes. This activity describes the operational sub-processes, helping in decomposing the company's operations; in this way, an accurate initial diagnosis can be made.

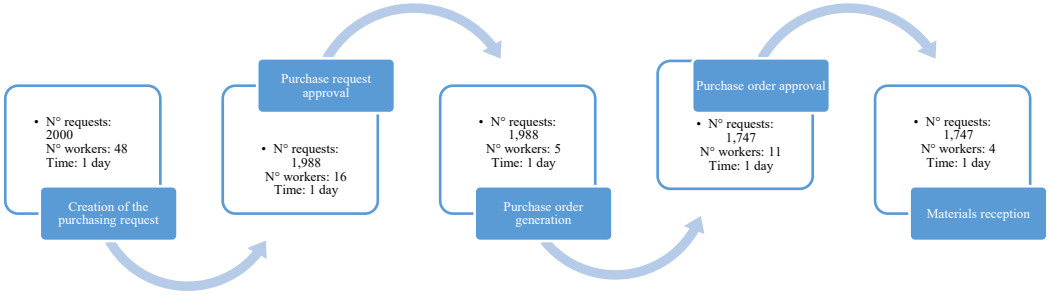


Figure 2. Process diagram flow

Value Added Analysis (VVA) matrices examine in detail each phase of a process to determine if they contribute to the needs, in other words (Figure 2), if they add value. Within the classifications of this matrix, it can be known whether the activity adds value to the customer (VA), value to the process (NNVA) or does not add value (NVA). (Alvarado et al., 2019; Hadasch et al., 2016) This application makes it possible to have more effective strategies and be more productive and competitive with the competition (Table 4).

Table 4. Table of the AVA Matrix for the Purchase Order Management Process

| Item | Responsible | Activity type | Variable | Value-adding time (days) | Non Value-adding time (days) | Total |
|---|---|---|---|---|---|---|
| 1 | User | Process | Controllable | 1 | 2.88 | 3.88 |
| 2 | Head of the area applicant | Process | Controllable | 4 | 3.64 | 7.64 |
| 3 | Purchase | Process | Controllable | 3 | 9.5 | 12.5 |
| 4 | Purchase | Process | Controllable | 4 | 14.11 | 18.11 |
| 5 | Storage | Process | Controllable | 3 | 2 | 5 |
| | **Total time in days** | | | 15 | 32.13 | 47.13 |
| | **Time percentage** | | | 32% | 68% | |

## 5.2 Graphical Results

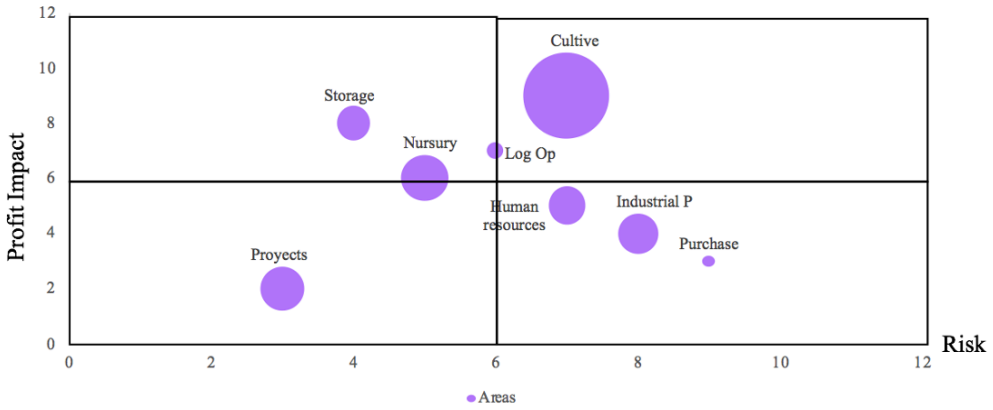


Figure 3. Kraljic's matrix

The most affected area was identified as the cultivation area (Figure 3). This directly impacts the company's production and harvesting of blueberries and represents 87% of the total purchases, amounting to almost S/. 50,000,000 and represents 36% of the orders generated by the entire company, managed by the purchasing area. It is the area with the highest number of purchase orders, the highest amount spent, and one of the most extended purchase generation times. It was also the most affected area since it is located in the quadrant with the most significant impact on the matrix.

As a result of the matrix, there were four areas with high supply risk: purchasing, plant, HR, and cultivation. That is why we thought of implementing solutions linked to strategic alliances and creating a contingency plan to ensure supplies. The leading solution to be implemented will be the creation of tenders and contracts in all possible areas, starting with those with a high supply risk. In the case study, a bidding process was carried out for fertilizers and pesticides, which resulted in savings of 16.66% of all purchases for the campaign. On the other hand, we reviewed the savings in the most relevant area according to the Kraljic matrix, the cultivation area, which currently has a savings of 10.05% without any bidding.

Table 5. Table showing savings with and without bidding

| | Total Costs | Total Savings | % Savings |
|---|---|---|---|
| FERT & PEST | 1,254,377 | 208,980 | 17% |
| CULTIVE | 1,436,306 | 144,307 | 10% |

After the thorough study was done, it was also decided to take other measures focused on and separated by the different groupings of factors mentioned in chapter 4:

### 5.2.1 Purchasing planning

To solve the problems concerning purchase planning, it was proposed to look for more suppliers for each family of products and services purchased. To constantly search these suppliers and follow up with the leading contracted suppliers to verify the excellent service. In addition, as previously mentioned, it is planned to increase the number of bids and contracts to ensure that the minimum term of these contracts is two years so that prices are stable, good discounts from the supplier, and a significant reduction in the workload.

### 5.2.2 Process standardization

One of the suggested implementations in process standardization is a specific method for generating purchase orders, which is effective and efficient. It should be well taught to the purchasing area and can be implemented in all processes. In this same standard method, there should be proactivity on the part of the buyers, anticipating orders. They can see the orders before they are approved and can request quotations. The main goal is to be able to teach these "tips" to all users in the purchasing area so that they can use their time more effectively, eliminating unnecessary downtime and waiting. By standardizing this type of process, rejected purchase orders will be reduced. Having the area organized in this way will help the finance area with timely payments, which will allow suppliers to increase the line of credit, which is needed to have a good cash flow.

### 5.2.3 Purchase and supply management

By implementing the solutions mentioned above, a remarkable reduction in the supplier's delivery time could be seen since having a more precise order makes it easier for third parties to have it. Especially if tenders and contracts are created, as these contain delivery schedules, and the supplier can anticipate all orders to have the required products ready.

### 5.2.4 Supply management

As previously mentioned, the solutions provided and the proposed process standardizations will eliminate a large part of the workload as time will be used more efficiently, and there will be a significant reduction in the bottleneck generated by purchase orders that tend to arrive in large quantities at the time of the campaign.

## 5.3 Proposed Improvements

As an improvement to the system, it was decided to implement an additional sequence to the process since two new resources will be added to support the approval and purchasing areas depending on parameters such as areas with

supply risk and sales history. It results in 165 instances initiated and 157 instances satisfactorily completed within the 60-day range. The first gate has a 55% probability for the "Yes" output, and the second gate has a 70% probability for the "No" calculated by the trend of the data obtained in the study. It is giving compliance of 98%. With mail automation support which will serve as administrative support so that the user can be aware of the requests automatically, in addition, it can help to record immediately on the server with mobile input for easy viewing and also the evaluation of the task quickly and easily giving a speed to each process of 30% per activity.

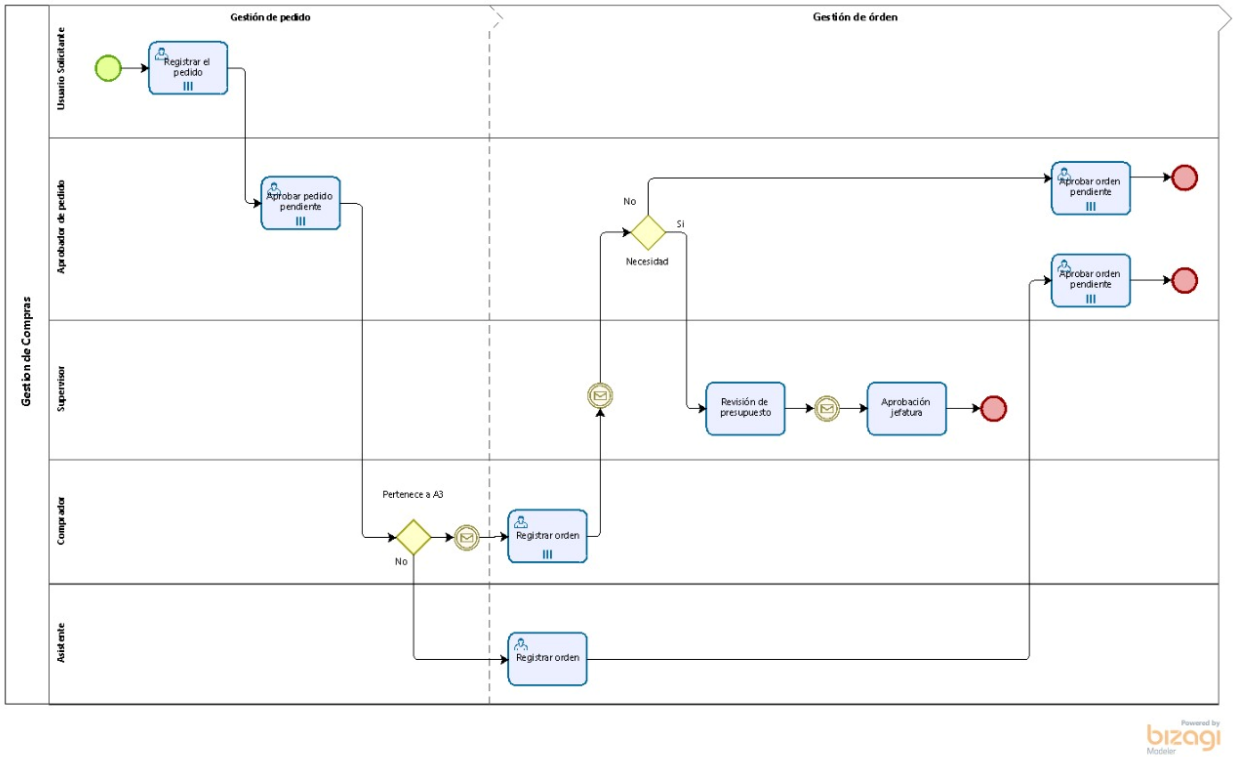


Figure 4. Subprocess implementation scenario

An improvement can be identified within the simulation, from the use of resources to the activities' processing times, noticeably reducing the times that did not add value and restructuring the area and the assigned tasks (Figure 4).

As mentioned by the authors Durance & Godet (2010), the scenarios generated in the simulations are highly variable; therefore, for a strategy to be solid, predictable scenarios must be considered; likewise, for scenarios with weak certainty, a flexible approach must be adopted in which a maximum number of reversible options can be included. The nature of the problems that arise and how they should be investigated to apply solutions should be considered. It is helpful to simulate the entire process, considering the inevitable setbacks and intermediate failures. Therefore, human factors are essential when assigning variables to each scenario in the present simulation since it is not a stable factor over time. In addition, process delays before management tend to affect the process in question. As a result, it was decided to assign a probability to each scenario of 0.65 to the realistic, 0.35 to the optimistic, and 0.1 to the pessimistic. Considering that the approvers may delay 20-30% in the activities that correspond to them (Table 6).

Table 6. Table showing Scenario comparison

| Indicators | Conservative Scenario | Mid Scenario | Optimistic Scenario |
|---|---|---|---|
| Resource utilization | 85% | 75% | 70% |
| Average time waiting for resources (H) | 15.9 | 8.24. | 2.588 |
| Standard deviation waiting for resources (h) | 15.32 | 10.52 | 3.20 |

An improvement can be identified within the simulation from the use of resources to the processing times of the activities, being able to decrease notoriously the times that did not add value by identifying the bottlenecks, which in this case are the approval of orders and acceptance of purchase orders, restructuring the area and the assigned tasks (Table 7).

Table 7. Table showing a Scenario comparison

| Task | Average processing time (d) | | |
|---|---|---|---|
| | Conservative Scenario | Mid Scenario | Optimistic Scenario |
| Register the request | 0.33 | 0.33 | 0.33 |
| Approve pending request | 8.92 | 3.34 | 2.67 |
| Register order | 8.83 | 5.9 | 2.77 |
| Approve pending order | 5.55 | 1.54 | 1.35 |

### 5.4 Validation

When studying the implementation of the Kraljic matrix, we found the possibility of a good result of saving approximately s/.24,000 for the cultivation area alone. If it were considered in the other areas of the company, the savings could be even more significant. Not to mention all the extra benefits of creating bids for the purchasing site and the user area.

On the other hand, results were obtained from implementing improvement in the simulation, which was presented through 3 hypothetical scenarios, assigned with a probability based on the resource. These could reflect a gain of up to 30% for each activity. Likewise, it was possible to show the advantages of optimizing and restructuring a process using automation.

To conclude with the solutions, it was possible to see an improvement in bottlenecks, order approval, and purchase order approval. This implementation resulted in a 30% benefit for these activities. In addition to assigning operational tasks to a specific user.

However, there were some limitations during the study, which hindered the research.
•There is a lack of scientific articles on purchasing management, the BPM model applied to purchasing management, and no documents containing BPM and the Kraljic matrix. There is a scarcity of case studies with results and information on the mentioned topics.

•The study had to be carried out for a determined number of months without being able to complete the working year because, as it is a seasonal product, it is sold by campaigns that usually run from July to December and can modify the modeled values.

## 6. Conclusion

Concerning the first objective of the research, it was possible to verify through the implementation of tools such as Kraljic and the BPM methodology that it is possible to evaluate, measure, and identify the variables most related to the main problem and thus be able to implement solutions. With the first tool, it is possible to achieve the savings goal, generating commercial strategies that imply a network of suppliers and goals concerning annual bids that can achieve savings of 27% in high-need products, all included in the annual strategic plan.

On the other hand, to achieve the necessary improvement of the purchasing area, it was possible to verify through the BPM simulation that the standardization of processes and reorganization at the area level is part of the limitations to reaching the level of compliance. The workload, bottlenecks, and urgent orders constitute a large part of the problem; therefore, the restructuring and management of resources can generate a change in cycle times of approximately 60%, impacting the third objective of this article.

Finally, the savings target is achievable based on the fulfillment of different strategies, which are affected by the management of tenders and the parameters established in such tenders. The hiring of operational support personnel was taken as an observation, which is focused on working and transactional tasks related to the server so that the functions of the other workers can be optimized. The research may be replicable in other sectors since it focuses on restructuring operational and automated jobs to optimize different areas simultaneously and reduce reprocesses.

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