



Tools for improving business performance. Case of a trading company

Herramientas para la mejora del desempeño empresarial. Caso de una empresa comercializadora

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Abstract

Continuous improvement programs are a necessity for any business organization that wishes to survive and develop in a highly dynamic environment such as the one that currently prevails in global scenarios. Consequently, there are multiple improvement approaches for administrative management; Therefore, the objective is to develop a procedure to improve performance in a company that markets products for animal consumption that contributes to a better achievement of its levels of efficiency and effectiveness. The methodology used is made up of four phases and nine steps where a series of proposals are incorporated such as the comprehensive analysis map of the indicators, the analysis of customer satisfaction with variable desired states, the method to determine deficit losses or exceedance of inventories, among other aspects. This research generated multiple results, including evaluating customer satisfaction and identifying the product portfolio, which presented the following: 105 satisfactory products, 129 deficits (with an

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estimated opportunity cost of at least \$ 9,441.08). In the same way, it provided workers with more efficient methods for the development of their activities, the analysis of suppliers and the causes that originate it as a fundamental improvement solution. The proposal of an inventory management system was considered viable where the company's managers will be able to obtain results in a time established for the company under study.

Keywords: Process approach; administrative systems; business performance; performance indicators.

Resumen

Los programas de mejora continua son una necesidad para toda organización empresarial que desee sobrevivir y desarrollarse en un entorno altamente dinámico como el que impera en la actualidad en los escenarios globales. En consecuencia, existen múltiples enfoques de mejora para la gestión administrativa; por lo que se plantea como objetivo desarrollar un procedimiento para mejorar el desempeño en una empresa de comercialización de productos para consumo animal que contribuya a un mejor logro de sus niveles de eficiencia y efectividad. La metodología utilizada se compone por cuatro fases y nueve pasos donde se incorporan una serie de propuesta tales como el mapa de análisis integral de los indicadores, el análisis de la satisfacción de los clientes con estados deseados variables, el método para determinar las pérdidas por déficit o excedencia de inventarios, entre otros aspectos. Esta investigación generó múltiples resultados, entre ellos evaluar la satisfacción del cliente e identificar el portafolio de productos, el cual presentó el siguiente comportamiento: 105 productos satisfactorios, 129 deficitarios (con un costo de oportunidad estimado de al menos \$ 9,441.08). De igual forma, aportó a los trabajadores métodos más eficientes para el desarrollo de sus actividades, el análisis de proveedores y las causas que lo originan como solución de mejora fundamental. Se consideró viable la propuesta de un sistema de gestión de inventarios donde los gerentes de la empresa podrán obtener resultados en un tiempo establecido para la empresa en estudio.



Palabras clave: Enfoque de procesos; sistemas administrativos; rendimiento del negocio; indicadores de desempeño.

Introduction

Since Fayol (1916) established the basic functions of the administration, these have become the main way of understanding the administration as an object of study. The naming of the functions and their scope vary among some authors, but generally most reduce it to four basic functions: planning, organizing, leading, and controlling. However, there is a fifth function that many authors develop independently, this is the improvement.

According to Juran & Gryna (1995), the administration has two basic types of objectives: those of control and those of improvement. These are not assumed independently, but, in general, in organizations both types of objectives must be developed; In other words, it is not possible to improve on all the criteria at the same time, for some control standards are defined and the improvement is concentrated on those most critical aspects that require the greatest effort and demand the greatest number of resources while generating the necessary resources. greater benefits.

Usually we talk about continuous improvement, but continuous improvement is not possible in all respects. The improvement can only be continuous when it is oriented to the systemic quality of the organization. Likewise, the systemic quality of profit-making organizations is expressed in terms of the profits generated and in non-profit organizations according to the level of satisfaction produced. Only these two indicators should be subjected to the search for continuous improvement, the rest of the organizational variables should improve or not depending on how they can contribute to the improvement of the systemic quality. For the reasons, it can be affirmed that the search to improve business performance is a constant in any type of productive sector or geographical area.



Starting from recognizing the importance of processes related to food in general, and those associated with the production of poultry products, it is interesting for humanity to delve into how these processes can be improved and identify what efforts are being made by administrative sciences to contribute to this purpose. In the Scopus database, a total of 2,512 publications on poultry production are reported until January 2021. The subject is approached from different sciences with a predominance of agricultural, veterinary, immunology, environmental or medicine sciences. However, from the administrative sciences only four publications are reported (Halvorson, 2009; Sayda, *et al.*, 2012; Karcher *et al.*, 2013; Yu *et al.*, 2013), which can be interpreted as a sign of that this productive sphere should be the object of an increase in research in administrative sciences with the aim of increasing the efficiency and effectiveness of the sector based on the importance it has for humanity in general.

From the foregoing it can be concluded that there are research opportunities on improving business administration in the sector, linked to poultry production. In accordance with all the above, the objective of this research is defined: to develop a methodology to improve performance in a livestock services company to contribute to a better achievement of its efficiency and effectiveness levels.

Literature Review

As of 1917, when Fayol published his book *General Administration of Industry*, the five functions of the Administration were enunciated: Provide, Plan, Organize, Direct and Control; and whose functions derived in the center of the Administration. This nomenclature has evolved and has been presented in different ways, in Table 1 it is exemplified by two relatively modern authors related to Administration.

Table 1

General functions of the Administration

Koontz (1994)		Stoner (1995)	
Functions	Variables	Functions	Variables
Planning	Objectives	Planning	Objectives
Organization	Policies	Organization	Policies
Integration	Decision Making Organizational Structure	Leadership	Decision Making Organizational Structure
Direction	Selection, Evaluation, Development		Resources Human Resources Management
Control	Performance	Control	Performance

The points of view in favor of one or the other are varied. The foresee function exposed by Fayol is recognized as part of the planning activities. The integration that Koontz points out is seen as part of the management function, and it is not always exercised since it only applies when a new worker joins the organization. The functions accepted by a great variety of authors are those exposed by Stoner (1995). These functions have characteristics that distinguish it, among them are: They are exercised cyclically; the development of one may make it necessary to retake some of the others, which makes it recursive; each of them can be developed as a result of a new internal management cycle applied to it.

Although the functions of the Administration Cycle were recognized throughout the 20th century, in recent years the need for continuous improvement to face the high dynamics of the environment and those inherent in the very process under administration became evident. For these reasons, authors such as Juran (1995) and García Vidal (2006) defend continuous improvement as a fifth function of the Administration. Both authors state that the management process is developed to ensure the achievement of two types of objectives: the control objectives to guarantee maintaining the performance achieved and those of improvements to increase the performance of some of the process parameters. Since the available resources are rarely enough to improve, all managers must establish improvement only towards one of the aspects, while the other elements must be objects of control.

Regarding Administration, the publications in Scopus (one of the most internationally recognized scientific databases) experience a tendency to increase from the 80s of the 20th century with a total of 191,826 publications until 2021.

Of the total of publications previously considered, only 126,295 publications refer to some of the classic functions of Administration, that is, 65.81 % of the total of the investigations related to this science. As shown in Table 2, and according to this information, the most explored function is control, followed by planning, while the improvement function it is the one in which the least has been deepened.

Table 2

Administration functions in scientific research

Administration functions	Total investigations	Percentage
Planning	39,144	30.99
Organization	11,937	9.45
Leadership	31,285	24.77
Control	43,929	34.78
Improvement	5,272	4.17
Total	126,295	100.00

Business performance

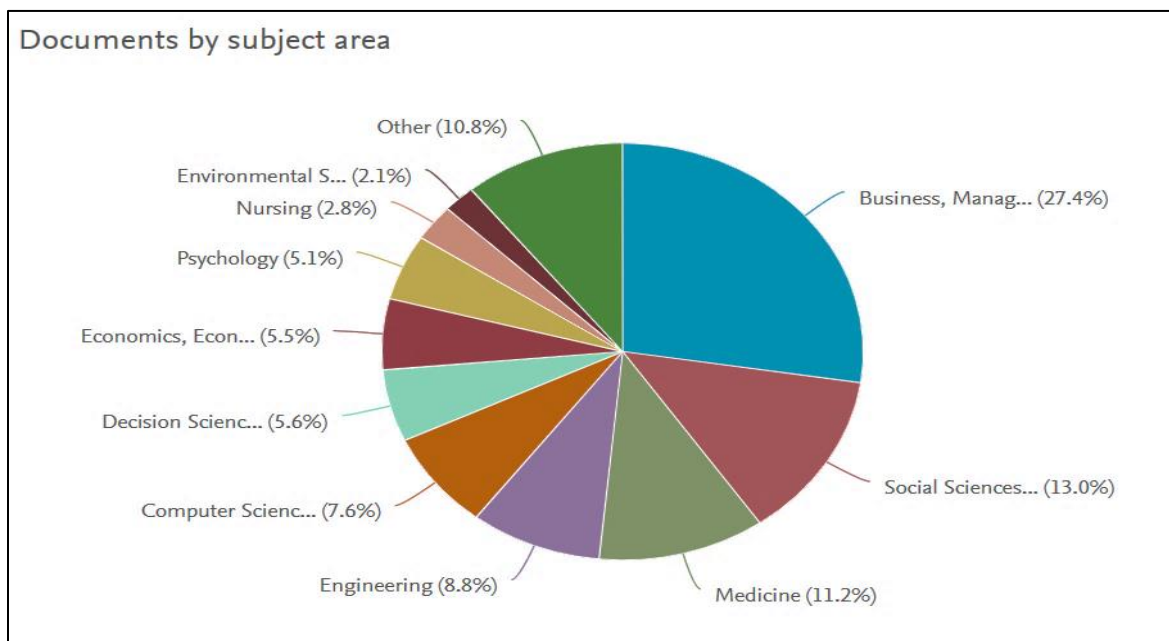
According to the authors, by performance should be understood: Exercising the obligations inherent to a profession, position or trade or acting, working, dedicating to an activity. In business administration this definition is tacitly assumed. However, the research carried out on the subject can be conceived from two different points of view: aiming to identify the actions necessary to optimize the achievement of performance results by planning work methods and ensure the means for its materialization, including the competent human resource for the activity,

or aiming to evaluate performance through the results that originate in each of the operations and processes. In other words, performance is not the object of study *per se*, but it is approached proactively or reactively and not simultaneously.

Investigations on organizational performance are objects of investigation of different sciences (Figure 1). Among these, the administrative sciences for obvious reasons are the ones that address it the most, although it is also strongly treated by other social sciences or by more specific sciences such as medical sciences. In the latter case, based on the particularities that it presents for the health sector in charge of the science; and for similar reasons it is treated by another great variety of sciences.

Figure 1

Percentage of investigations by area of knowledge on organizational improvement

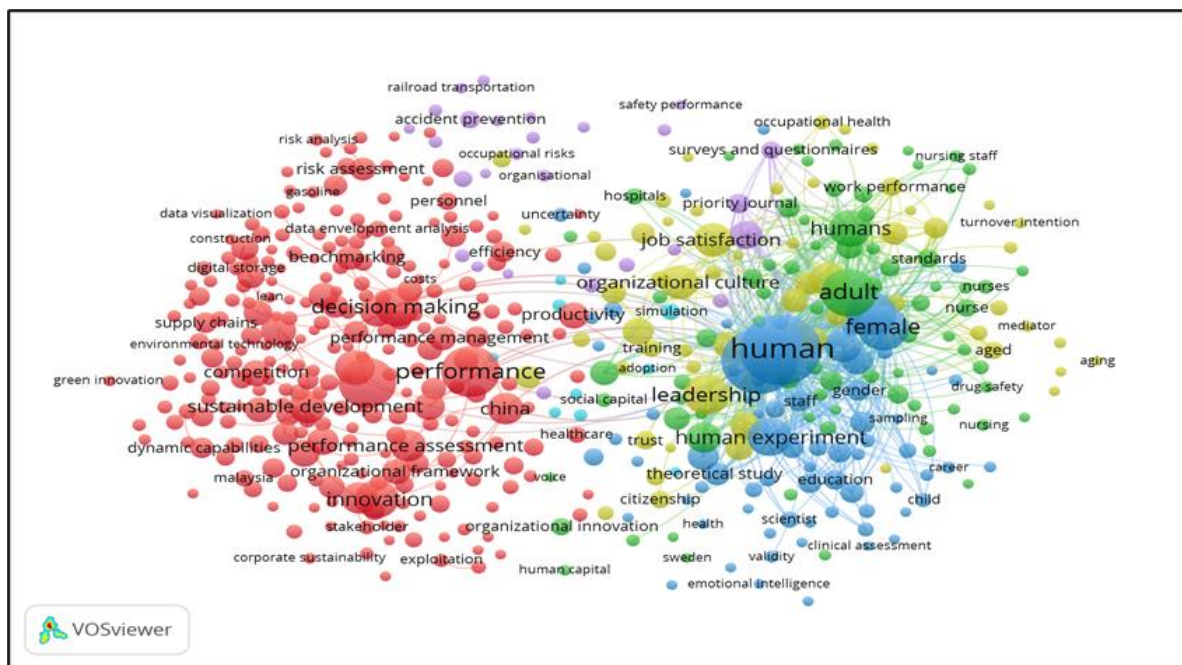


Source: From Scopus considering existing information until January 2021

These investigations are approached from different disciplines of administrative sciences. Figure 2 represents a concurrency analysis of the research on organizational performance, in which two large groups are distinguished towards which the research is directed. The group where the colors vary and which delves into the different variables associated with human behavior and that affect performance, and the group with a predominance of red color where variables that condition performance and that present a more holistic nature are analyzed.

Figure 2

Co-occurrence analysis on research related to organizational improvement



Source: From Scopus considering existing information until January 2021

As has already been analyzed, organizational performance is generally assumed from the administrative sciences control function, since it seeks to measure the results generated by performance, evaluate the causes that limit it and generate actions to mitigate the limitations.



According to Pérez-Campdesuñer *et al.* (2020), control in the administration is a relatively controversial issue, since several contradictory practical or theoretical trends develop around it, among which the following stand out:

- Omission: many proposals are only limited to action planning and do not conceive the forms of control that ensure the desired success or the correction of what has been achieved based on an improvement that contributes to reducing the gap between what has been achieved and what is desired.
- Annotation: not a few limits the control to the action of evaluating the results without recognizing that this is only a step within the control that ends with the application of corrective actions.
- Exacerbation: others, perhaps as a compensatory effect, magnify it and extend it beyond what it implies, presenting the control itself as an administrative system rather than as a function of the administration within the system.

As can be seen, the control can be equally ignored, limited than enhanced; In these brief pages it is intended to expose some of the theoretical foundations related to control, as well as to address some of the particularities that arise with respect to it.

The omission of control as a determining function is recognized by authors such as Ronda Pupo & Marcané Laserra (2014), who distinguishes it as one of the elements that leads to failure in the strategies implementation processes. In turn, it was pointed out as one of the ailments of Strategic Planning in its first proposals, which is why it subsequently led to Strategic Management, thus contemplating the entire administrative cycle.

Another challenge that controls faces in its practical development is the opposite tendency to maximize it, converting it only from means to end, and conditioning the development of processes to the conservation of the status quo at all costs, preventing the development of the organizational system (Carnota Lauzan, 2013).

The most widespread mechanism to measure, understand and communicate the degree to which a process achieves control is through indicator systems. Indicators are used to express the relationship between the desired and achieved state, hence many indicators are established based on the relationship between what was achieved (Real) and what was proposed (Plan). These indicators can be expressed in absolute terms, being more in line with the reality they measure; or in relative or percentage terms with which they are more understandable and generalizable, but subject to a greater probability of distorting the information they contain by allowing more easily to move the reference point with respect to which it is compared.

In administrative practices, indicators are generally oriented to measure the degree to which results are achieved, resources are used, or to measure the impact that the results generate in the environment to which they are oriented. In this sense, the indicators are grouped under the terms of efficiency (aimed at measuring the use of resources) or effectiveness and efficacy (relative to the degree of achievement of the objectives). In the Spanish language, Administration specialists tend to establish differences between effectiveness and efficacy, without reaching full consensus between them. It is striking that in the English language only the term “effectiveness” is used as equivalent to both names, which is even more striking if one considers that it is in the English language where the greatest amount of research in science is generated and reported administrative. Something similar happens with the terms administration, direction, or management in the administrative field. Table 3 shows an example of possible indicators used for control.

Table 3

Indicators used for control

Indicators of		Example
Efficiency	Use of resources	Productivity Cost Time
Efficacy or Effectiveness	Achievement of objectives	Income Output Customer Satisfaction

The business improvement process

Despite being the least researched function of the administrative functions, the number of investigations carried out on this topic is still abundant. In Scopus, a total of 5,272 publications on organizational improvement are reported and, like the rest of the functions, the number of these investigations also shows a growing trend since the end of the 20th century.

Organizational improvement is the object of research in various geographical latitudes, observing investigations that are reported from each of the continents (Aichouni *et al.*, 2014; Abrudan *et al.*, 2015; Vasconcelos & da Silva, 2015; Ahmed Haji & Anifowose, 2016; Favero & Rutherford, 2016; Ahmad *et al.*, 2018). Similarly, research on the issues is developed in a wide variety of social or productive sectors such as construction (Willar 2017; Zhu *et al.*, 2017), maritime transport (Yuen *et al.*, 2016), financial institutions (Tortorella *et al.*, 2015), small and medium-sized companies (Zhu *et al.*, 2019), production or service companies (Sukdeo *et al.*, 2017), universities (Albats *et al.*, 2018), hospitals (Chug & Vibhuti, 2017), public sector companies (Sun & Henderson, 2017; Susanty *et al.*, 2019).

In administration, the analysis of the improvement can be oriented both to the final or exit results of the organization, such as productivity (Ye & King, 2016; Tucker & Tucker, 2017; Umar & Chunwe, 2019), customer satisfaction (Valmohammadi, 2017), worker satisfaction (Uppal, 2017); as well as certain internal disciplines of the administration: product innovation and design (Yepes *et al.*, 2016; Zammit *et al.*, 2016), quality management (Yazdani *et al.*, 2016; Tasleem *et al.*, 2017; Guevara-Mosquera, 2020), logistics management (Voznenko & Roman, 2015), supply chain (Zhang *et al.*, 2016), maintenance processes (Tättilä *et al.*, 2014), human resource management (Zaim *et al.* 2018), organizational designs (Zhang *et al.*, 2018), and leadership (Vashdi *et al.*, 2018).

A co-occurrence analysis of the research on organizational improvement was made, in which two large groups or clusters are distinguished towards which improvement is concentrated. The first group where the improvement is concentrated in aspects of processes and (or) systems;

and the second group where improvement is sought over human competencies and management styles.

Methodology

The methodology includes four phases allowing to achieve the objective and described below.

Phase 1. Previous preparation

The objective of this phase is to ensure the existence of the necessary conditions to be able to successfully develop each of the phases and steps provided by the methodology in such a way that it is guaranteed to achieve the objectives set for the methodology itself. It includes creating commitment and characterizing the organization.

Phase 2. Diagnosis of the organization

Its objective is to characterize the performance of the organization to identify what problems limit it, as well as what are the causes that condition it. The steps that are developed are the identification of the problem and the analysis of the causes.

The research started from the analysis of the general performance indicators, considering the monthly performance during the last two years (2019 and 2020). Among the assessed indicators were utilities, expenses, income, productivity, and inventory level.

In addition, the degree of knowledge that the organization has about its clients was characterized, what database on clients it has, what data it has registered, what percentage of clients have managed to register, the degree of updating of the data. Also, the systems for collecting and processing customer information will be analyzed, and the degree of customer satisfaction will be evaluated.

The composition of the product portfolio was characterized, for each of the product lines. For each of the products the following indicators should be evaluated: inventory turnover level, contribution margin, income, and storage costs.

It is not desirable that all indicators show the same trend, there are indicators such as income that it is desirable that its trend be upward, while other indicators such as cost must tend to decrease to be satisfactory. Similarly, it is reasonable to predict that the same indicator must show markedly different behaviors in its behavior between one product and another; Finally, sometimes organizations do not want to offer direct information on the behavior of their indicators. For these reasons, standardized information was used for this purpose. It is recommended to use the information provided in expressions 1 and 2.

Indicators with a tendency to grow:

$$VI = 100 * \left(1 - \frac{V_{max} - V_r}{V_{max}}\right) \quad (1)$$

Indicators with a tendency to decrease:

$$VI = 100 * \left(1 - \frac{V_r}{V_{max}}\right) \quad (2)$$

where,

VI = Value of the indicator to use

V_{max} = Maximum value reached by the indicator

V_r = Real value of the indicator

To carry out a comprehensive analysis of the product portfolio, considering all the indicators and products, a main correspondence analysis is carried out, using SPSS 20 version. For the analysis, competitors must be characterized. The strengths of each of these competitors with respect to the organization, as well as the aspects in which the organization exceeds them. To obtain this information, group work sessions are held with sales, marketing and (or) public relations personnel.

Once the entire environment has been characterized, as well as the results or main outputs of the organization, the state of the process is characterized. For the analysis of the processes, it is recommended to start from tools already used such as the process map, the flow diagrams. For each of the processes that make up the organization, the state of its technology, the availability and quality of work methods, and the quantity and quality of human resources available to the organization must be characterized.

Concluded with the analysis of the processes, the state of the relationship with the suppliers should be evaluated, assessing the satisfaction with them in terms of quantity, quality, opportunity, and variety.

Once the status of the different aspects evaluated in the previous tasks has been characterized, an integration with the results is carried out, identifying the strengths and weaknesses. To achieve a comprehensive evaluation of the results, the level of performance must be determined by expression (3).

$$ND = \prod_{i=1}^n \left(1 - \frac{E_{rii}}{E_{dii}} \right) \quad (3)$$

where,

ND = Performance level

E_{rii} = Actual state of performance

E_{dii} = Desired state of performance

From the problems identified in the previous step, an analysis of the causes that generate them should be carried out. For the analysis of the causes, group work sessions are carried out where, applying brainstorming, a list of possible causes is listed. It is also recommended once the causes are correctly identified to evaluate their priority and general feasibility of solution, since sometimes the solutions are known, but not possible since they respond to objective problems that are beyond the scope of the company's action at least temporarily.



Phase 3. Planning the solution

Its objective is to generate, evaluate, and select solutions to apply that lead to an increase in the organization's performance. These steps are required: build solutions, prioritize solutions, and plan solutions.

In accordance with the previous results, once the problems and their causes have been identified and the priority of the solution evaluated, the activity of generating potential solutions should begin, starting from the premise that the more solutions are generated, the greater the probability of success there will be.

Phase 4. Application and adjustment of the solution

Its objective is to apply the planned solutions, as well as make the necessary adjustments that the practical application shows as necessary. It is developed in two steps: Application of the solution and adjustments. Once the planning of the solution is concluded, the plan must be carried out. The implementation of the measurement plans will be possible as long as actions have been carried out aimed at reducing resistance to change by those involved.

Results

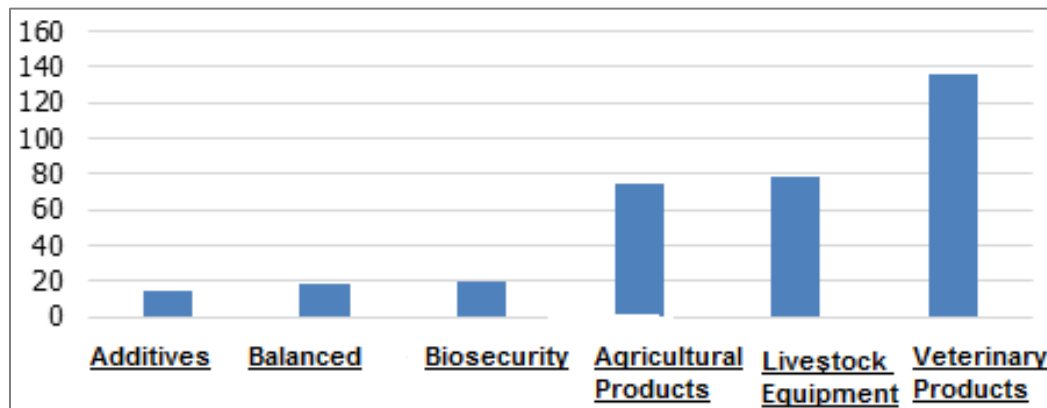
Phase 1. Previous preparation

The organization under study currently has four points of sale, located in strategic areas of the region where its potential customers are located, three of them in the province of Santo Domingo de los Tsáchilas, with highly trained technical business advisors. Through the database analysis and the use of Excel sales macros, it was determined that currently more than 5,000 customers are registered, of which about 2,000 are those that have been commercially active during the last year. This company has more than 40 suppliers, which vary depending on the frequency and accumulated values of purchases.

As can be seen in the figure 3, despite the great variety of providers, the highest percentage of contribution is grouped, both in frequency and in contributed values, in no more than nine providers. According to the existence of the company's inventories and the classification registered in the accounting system, it can be determined that at the beginning of the last quarter of the current year there were 382 items (products), which are divided into lines that group different families (Figure 3).

Figure 3

Composition of product lines



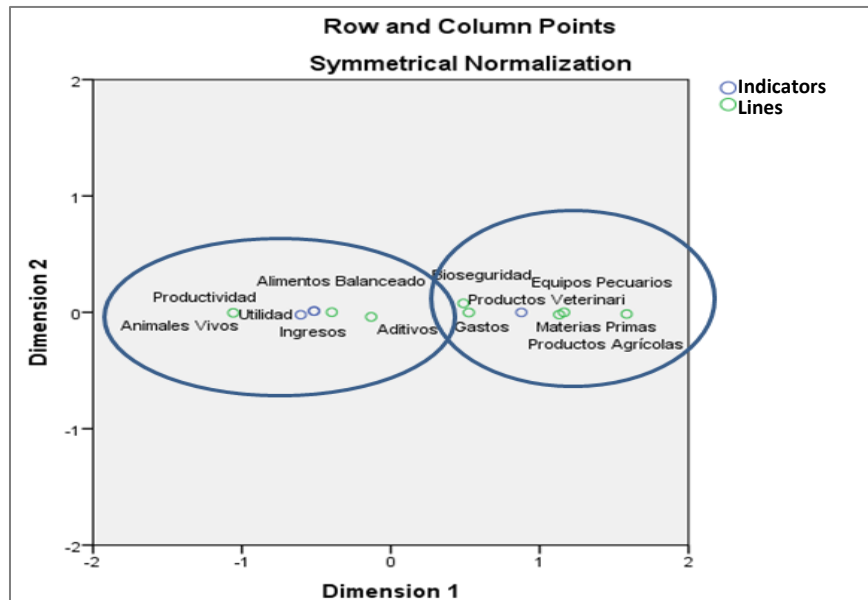
It is worth mentioning that in the line of live animals, which includes the commercialization of chicks, they are only distributed to customers from the main warehouse located in the downtown area of Santo Domingo; while in the points of sale located in Nuevo Israel and El Carmen, three-level brooders are maintained that house 200 chicks for sale, which have an inventory rotation of 15 days.

Phase 2. Diagnosis of the organization

For the analysis of the performance indicators, the behavior of the last 24 months was taken for each of the product lines. Figure 4 shows the result of the correspondence analysis performed on them.

Figure 4

Behavior of the indicators



As can be seen, the indicators show quite similar behavior. However, it is appreciated that some lines stand out for presenting a greater orientation to income, productivity, and profits, such as live animals, additives, and balanced food. While other lines differ by being oriented towards a lower behavior of expenses, among these lines are livestock equipment, veterinary products, raw materials, agricultural products and livestock equipment.

For the study of customers, the application of the method developed for these purposes by Noda Hernández (2004) was used, which determines customer satisfaction based on establishing the fundamental attributes that characterize the service, the relative importance it gives to these are the customer and customer perception of the status of the attributes. To determine the relative importance of the attributes, a Kendall matching method was applied to seven customers selected for their purchase frequency and the length of time they have been customers in the organization.

It worked with a population of 1,953 and a margin of error of 0.01, which allowed defining a sample size of 92 customers. It allows to analyze the status of each attribute independently and consequently design specific strategies for each attribute. The attributes

product quality and on-time delivery are very favorably perceived by customers. However, the attributes fair price, availability of production, response time and access to service do not reach the desired state and consequently are susceptible to improvement actions.

In the organization, specifically in the marketing process, the composition of the product portfolio is conditioned by the behavior of inventory management. In this sense, the 382 products analyzed showed three types of behavior, as summarized in Table 4.

Table 4

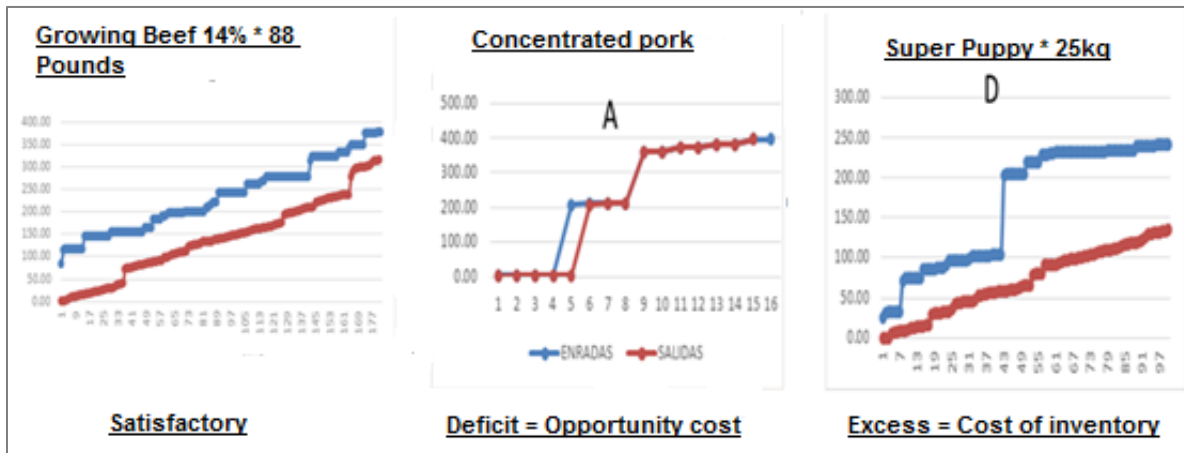
Behavior of the product portfolio

Type of performance	Quantity of products	Consequence
Satisfactory	105	Reasonable security
Deficit	129	An approximate opportunity cost of \$ 9441.08
Excess	148	An estimated cost of immobility at \$ 2012.46

Figure 5 illustrates the behavior of each of these product groups. The products that are considered to have a satisfactory behavior are those whose stock levels exceed demand levels by a reasonable margin. The difference between stock and demand is assumed as the safety margin that allows covering eventualities. Considering that there is no previous study in the company that pre-establishes the level of security for each product, this was estimated as 20% of demand for the period between supplies.

Figure 5

Behavior of each product group according to inventory level



Approximately 129 products were detected that are sold out between supplies, with days when they are not available; considering that the demand can be daily, this presupposes an opportunity cost. As a contrary effect, products were identified that have levels of stock much higher than necessary.

What immobilized money implies that affects the liquidity of the organization. Furthermore, it can cause an increase in storage, transportation costs, and loss of spoiled products due to low turnover. To estimate these costs, the costs for lack of liquidity and those for the acquisition of the product were assumed. These costs were only estimated for the 50% surplus, assuming the remainder as a safety margin.

In the competitor analysis, it was established that the company showed an equivalence position with respect to its competitors. Similarly, internal processes and the relationship with suppliers did not identify major difficulties. The result of the integration of the process diagnosis is summarized in Table 5.

Table 5

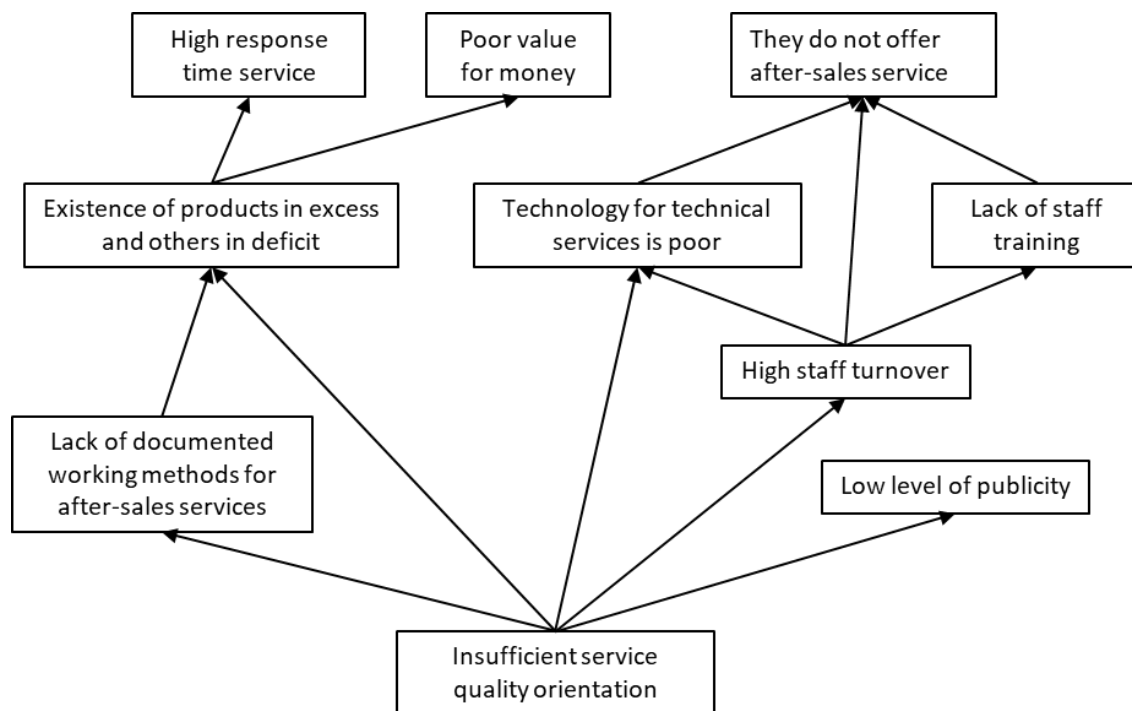
Performance level

Indicators	Desired state	Real State	Performance
Income	279,134.90	253,759.00	0.90909091
Expenses	17,556.46	19,083.11	0,92
Utilities	6637.156	5771.44	0.86956522
Productivity	7306.40	5431.40	0.74337552
Customer satisfaction	4.49	3.91	0.87082405
Total			0.47

The performance level is insufficient and highly susceptible to improvement, the indicator that most affects the performance level is productivity followed by customer satisfaction. The analysis of the causes that determine this performance is shown in Figure 6.

Figure 6

Current reality tree



The fundamental causes are associated with the insufficient quality of the service and the lack of documented working methods, which has an unfavorable impact on the lack of a successful inventory management system, generating losses that could become significant. Furthermore, the quality of the service is impacted by problems with human talent, which is perceived as lacking in training and is not considered sufficiently motivated; This situation, together with the lack of technology, conditions the non-provision of after-sales services.

Phase 3. Planning for the solution

An evaluation of the priority of the solutions was carried out, according to which the most pressing causes of solution are the quality of the service, the lack of after-sales service, the lack of working methods in general and of the system of inventory management with adequately justified parameters that allow reducing losses due to lack or deficit of products.

From the analysis of the causes, the solutions were generated, and their pertinence evaluated, for which the Saaty method was applied, which allowed them to be ordered according to their priority.

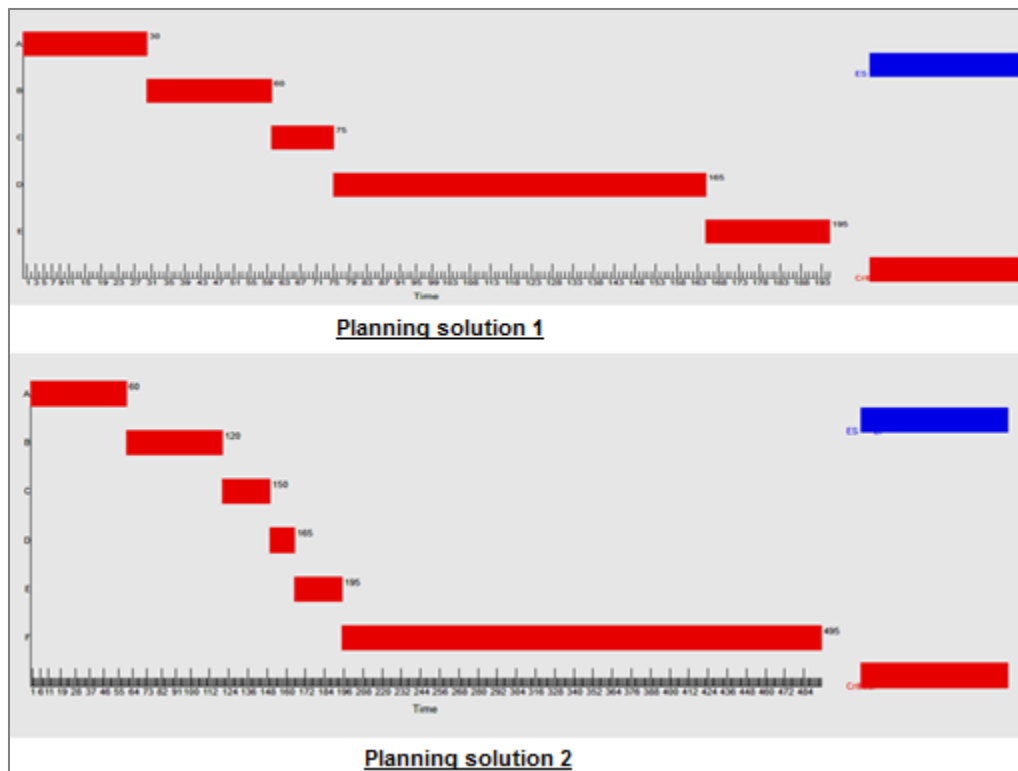
The proposed solutions were plan staff training; Improve the inventory control system, organize the commercial team and carry out market monitoring, assign a budget so that the commercial department can carry out advertising campaigns, implement new relationships with suppliers, establish policies and procedures for after-sales service, and improve the process of socialization and retention of staff. Figure 7 shows the chronological planning of the activities to be carried out.

Phase 4. Application and adjustment of the solution

Once the diagnosis and design phases of the solutions have been completed, only their application remains, which should be developed without major inconveniences since the previous phases were carried out with the support of the entity's managers and workers, in the diagnosis phase the need for improvement, and the solutions proposed do not have a high level of complexity or involve large economic investments.

Figure 7

Planning of activities



Conclusions

Continuous improvement programs are a demand of any business organization that wishes to survive and develop in a highly dynamic environment, such as the one that currently prevails on the international and national scene. Consequently, there are multiple improvement approaches for administrative management.

An improvement methodology was proposed to apply in the object of study, where a series of proposals are incorporated such as the integral analysis map of the indicators, the analysis of customer satisfaction with variable desired states, the method to determine the losses due to deficit or excess of inventories, among other aspects.

The application of the methodology in the entity under study allowed to identify, analyze, and weigh up opportunities for improvement of the organization. These opportunities for improvement were planned according to the interests and potential of the organization and it is expected that their application will benefit it.

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