



**Faculty of Legal Sciences**

**School of International Studies**

**PROPOSAL FOR INTERNATIONAL  
CERTIFICATION OF FOOD PRODUCTS, FOR  
PIGGIS COMPANY**

**Degree dissertation prior to obtaining the degree  
in International Studies with a Bilingual Minor in  
Foreign Trade**

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**Cuenca - Ecuador**

**2023**

## **DEDICATION**

This work is dedicated to my grandparents, siblings,  
and my entire family who have supported,  
motivated, and inspired me to develop this work. It  
is also dedicated to my parents for always  
encouraging me. I owe all my achievements to them.

## **ACKNOWLEDGEMENTS**

I want to thank God who has always guided me. In addition, I would like to thank Piggis for always allowing me access to their facilities during the completion of this work, especially the Manager, Fernando Pacheco, Engineer Juan Pablo Nieves and Engineer Jorge Astudillo for their support.

I would also like to sincerely thank my thesis director, Mg. Juan Maldonado, for his guidance and constant support during the development of this work.

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## ABSTRACT

Piggis, a company from Cuenca, is constantly seeking to ensure the quality and wholesomeness of its products. The objective of this study was to identify a certifiable international standard that would improve the company's integrated management. To this end, a situational analysis of the company was carried out and then the ISO 22000, ISO 9001, GMP and HACCP standards were analyzed to determine which one best suited the company. Together with the company's management, it was determined that ISO 22000 and ISO 9001 were the most appropriate standards and the requirements that the company did not meet in terms of these standards were identified. Finally, an action plan was proposed based on the findings, which seeks to eliminate the existing gaps and leave the company better prepared for a future certification process.

**Keywords:** accreditation process, continuous improvement, food industry, international standard, quality management system.

## RESUMEN

La empresa cuencana Piggis busca permanentemente asegurar la calidad y salubridad de sus productos. Este trabajo tuvo como objetivo identificar una norma internacional certificable que mejore la gestión integral de la empresa. Para esto, se realizó un análisis situacional de la empresa y luego se analizaron las normas ISO 22000, ISO 9001, BPM y HACCP para determinar cuál es la que mejor se ajusta a la empresa. En conjunto con la dirección de la empresa se determinó que las normas ISO 22000 e ISO 9001 eran las más adecuadas y se procedió a identificar cuáles eran los requisitos que la empresa no cumplía en cuanto a las exigencias de estas normas. Finalmente, se propuso un plan de acción basado en los hallazgos realizados el cual busca eliminar las brechas existentes y dejar a la empresa mejor preparada de cara a un futuro proceso de certificación.

**Palabras clave:** industria alimenticia, mejora continua, norma internacional, proceso de acreditación, sistema de gestión de calidad.



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## INTRODUCTION

Piggis is a sausage company from Cuenca that started 36 years ago and has gradually grown to become one of the main manufacturers of food products at a national scale. However, the company wants to grow more in several areas and one of them is to expand far beyond Ecuador, this is why it is seeking international recognition of quality, which is obtained through certification standards. The purpose of the certification standards is to guarantee the good elaboration of products. Thanks to these regulations, some companies have managed to improve their production processes, and have obtained certifications that improved their management and has been a strategic factor to enter new markets. For this reason, this paper will analyze the company itself, research the different quality management systems and present the action plan recommended to the company in order to obtain a quality certification.

The first chapter focuses on describing Piggis company in order to understand it. It will first explain how the company started and developed. In addition, it will detail the products it has, the steps that must be followed to produce them and its strategies. Then, it concludes with two analyses, SWOT and PESTEL, which show the company's advantages and disadvantages.

In the second chapter, quality systems are introduced. The concept and origin of these systems are established. It also presents the different types of management systems that work for food companies. It concludes with an explanation of how they work, what they are used for, what area they focus on, what principles they are based on and what their requirements are.

In the third chapter, the appropriate standard to implement in the Piggis company is defined. First, the way in which the standard was chosen is presented and an internal audit of the company is carried out as stipulated in the standard. Subsequently, the company's shortcomings are identified. The work concludes with an explanation of the proposals that the company should make in the missing activities.



# **CHAPTER 1: ANALYSIS OF THE CURRENT SITUATION OF THE COMPANY**

In order to make a certification proposal to a company, it is necessary to research and analyze the company. For this reason, this chapter will describe the generalities, processes and structure of the company. Likewise, it is important to carry out an internal and external analysis of the company in order to know the context in which it is located.

## **1. HISTORICAL CONTEXT**

Piggis is an Ecuadorian company dedicated to the manufacture and marketing of sausages. Mr. Carlos Pacheco Vidal and his wife, Mrs. Rebeca Pacheco started this company thirty years ago. At the beginning, they did all the work by themselves in an artisan way along with three machines: a basic sausage mixer, a cutlet seamer and a manual sausage filler. With the help of their father, Mr. Carlos Gilberto Pacheco Torres, they managed to get a space where they could produce sausages for three and a half years.

They improved their equipment and knowledge in the production field and growth little by little. Then, they took the decision to take another risky but worthwhile step. They decided to build a first warehouse at Castellana and Segovia avenue where Piggis sausage factor is located today. Years went by and Piggis stopped being a small business and, in 1989, they managed to form a small industry in the food and sausage line.

As time went by, in order to grow and meet the needs of their customers, it became necessary to acquire more machinery and also needed more manpower, so by that time there were already 15 employees working for the company.

For 7 years Piggis was a microenterprise; however, the space was not enough to produce what was needed so little by little they bought the land next door to build a new warehouse and a vacuum packaging area, thus becoming the second factory with a vacuum packaging room. After acquiring new machinery, the company grew in structure, quality and technology. Since then, the company began to produce packages

of no less than 500 grams or 1 kilo. Without stopping to innovate, they have managed to position themselves in the market at a national level. Today, this company owns three delicatessen in the city of Cuenca and they supply a large chain of well-known supermarkets, such as Supermaxi. Also, they have managed to build a plant, innovated and based on all the standards required by the GMP (good manufacturing practices).

Following the great progress of the company, this year, Piggis has acquired a land where they are building a new and larger plant, totally innovative in every sense and self-sustainable in several areas. Also, the company has 400 employees nationwide, some of them are the children of Mr. Carlos Pacheco. His descendants are in front of some areas of the company. In addition, trustworthy and committed people to the company work there and without them, growth couldn't be possible.

## 1.1. Product description

The company has a large and varied list of products that are part of the classic, supreme or premium line and they are divided in: smoked products, chorizos, hams, mortadellas and sausages.

### 1.1.1. Smoked

Within the line of smoked products you can find products such as chicken wings, pork chops, pork loin, chicken, pork leg, bacon and chicken legs which are the Premium products of the Piggis company. Their presentations vary from 450 grams to 1.7 kilograms in certain products.

Table 1

*Smoked products line*

<b>Product</b>	<b>Line</b>	<b>Presentation</b>
Smoked chicken wings	Premium	Packing of 450 to 600 grams.
Smoked pork chop	Premium	Presentations from 500 grams to the whole piece.
Smoked pork loin	Premium	In pieces by weight and in slices of 1 kilogram in the package.

Smoked chicken	Premium	Packages from 500 grams to 1.7 kilograms.
Pernil	Premium	Presentation of 100 grams.
Bacon with fat	Premium	Packing of piece by weight and slices of 1 kilogram.
Fat-free bacon	Premium	Packing from 200 grams to 1 kilogram.
Smoked chicken legs	Premium	Packing of 450 to 500 grams.

Source: Piggis (2023)

### 1.1.2. Chorizos

Piggis' products include a line of chorizo sausages. This line is the most widespread due to its variety of options such as: choricillo, chorizo with chili, chorizo with rosemary, chorizo argentino, chorizo cervecero, chistorra, chorizo parrillero, chorizo with roasted garlic, chorizo with basil, chorizo cuencano, chorizo with pork, turkey, chicken, red chorizo, salchipincho and chorizo mix German tradition. The presentations of the chorizos vary from 400-500 grams to 22.73 kilograms in certain products. In this group, most of the products are part of the Premium line; however, there are also a few products of the classic and supreme line.

Table 2

*Sausage line*

<b>Product</b>	<b>Line</b>	<b>Presentation</b>
Choricillo	Premium	Presentation from 500 grams to 5 kilograms.
Chorizo with chili	Premium	400 or 500 grams box packaging.
Chorizo with rosemary	Premium	400 or 500 grams box packaging.
Argentine Chorizo	Premium	400 or 500 grams box packaging.
Brewer's sausage	Classic	400 or 500 grams box packaging.

Chorizo chistorra sausage	Premium	400 or 500 grams box packaging.
Grilled chorizo	Classic	400 or 500 grams box packaging.
Chorizo with roasted garlic	Premium	400 or 500 grams box packaging.
Chorizo with basil	Premium	400 or 500 grams box packaging.
Chorizo cuencano	Supreme	400 or 500 grams box packaging.
Pork sausage	Classic	Presentation from 500 grams to 22.73 kilograms
Turkey sausage	Premium	Presentation from 500 grams to 22.73 kilograms
Chicken sausage	Supreme	Presentation from 500 grams to 22.73 kilograms
Red sausage	Supreme	Presentation from 500 grams to 22.73 kilograms
Chorizo salchipincho	Premium	Presentation from 500 grams up to 5 kilograms
Mix chorizo German tradition	Premium	Packing of 250 grams.

Source: Piggis (2023)

### 1.1.3. Hams

The hams do not have as much variety as the other products, even so it is a product that is purchased by customers on a daily basis. The company offers American ham (classic), back ham (suprema), leg ham (Premium), chicken ham (Premium), pizza ham (Premium), and sandwich ham (suprema). Their presentations vary from 200 grams to 5.5 kilograms in certain products.

Table 3

*Ham line*

Product	Line	Presentation
American ham	Classic	Packages from 440 grams to 840 grams.

Back ham	Supreme	Packages from 200 grams to 5.5 kilograms.
Leg ham	Premium	Packages from 200 grams to 5.5 kilograms.
Chicken ham	Premium	Unique presentation of small piece of 2.5 kilograms.
Ham leg pizza	Premium	Packing of slices from 200 grams to 5.5 kilograms.
Sanduchero ham	Supreme	Packing from 200 grams to 3.5 kilograms.

Source: Piggis (2023)

#### 1.1.4. Mortadellas

The company also has a set of products divided into mortadella. There is Bologna mortadella, chicken mortadella, special German mortadella, extra mortadella, extra Premium mortadella and traditional mortadella. These products have presentations from 300 grams to 4.50 kilograms in some of them, most of them being part of the supreme line and the others of the classic line and also Premium.

Table 4

##### *Mortadella line*

<b>Product</b>	<b>Line</b>	<b>Presentation</b>
Mortadella Bologna	Supreme	Package from 900 grams to 2.5 kilograms.
Chicken Mortadella	Supreme	Package of 370 grams.
German special Mortadella	Classic	Heel from 450 grams to 1.35 kilograms.
Mortadela extra	Supreme	Piece from 1.80 to 3.6 kilograms.
Mortadella extra Premium	Premium	Slices of 300 grams and piece of 4.50 kilograms.
Traditional Mortadella	Premium	Taco from 450 grams to 1.5 kilograms.

Source: Piggis (2023)

### 1.1.5. Sausages

Within the sausage group, there are white sausage, cheese sausage, chicken sausage, breakfast sausage, economy sausage, cocktail sausage, German Frankfurter sausage and HotDog sausage. Their presentations vary between packages and casings of 300 grams up to 22.73 kilograms and bags of 15 and 22.73 kilograms. Most of the products are part of the Premium line; on the other hand, the economy, cocktail and HotDog sausage are part of the classic line and only the chicken sausage is part of the supreme line.

Table5

*Sausage line*

<b>Product</b>	<b>Line</b>	<b>Presentation</b>
White sausage	Premium	Packing of 450 grams.
Sausage with cheese	Premium	Packing from 300 grams to 3 kilograms
Chicken sausage	Supreme	Sheathed from 1 to 5 kilograms and 22.73 kilograms bag.
Breakfast sausage	Premium	Packing of 2 kilograms.
Economical sausage	Classic	Sheathed from 1 to 5 kilograms and 15 kilograms bag.
Cocktail sausage	Classic	Sheathed from 1 to 5 kilograms and bag of 15 and 22.73 kilograms.
German frankfurter sausage	Premium	Packing from 350 grams to 5 kilograms.
HotDog Sausage	Classic	Sheathed from 1 to 22.73 kilograms.

Source: Piggis (2023)

## 1.2. Description of the company

### 1.2.1. Organizational structure

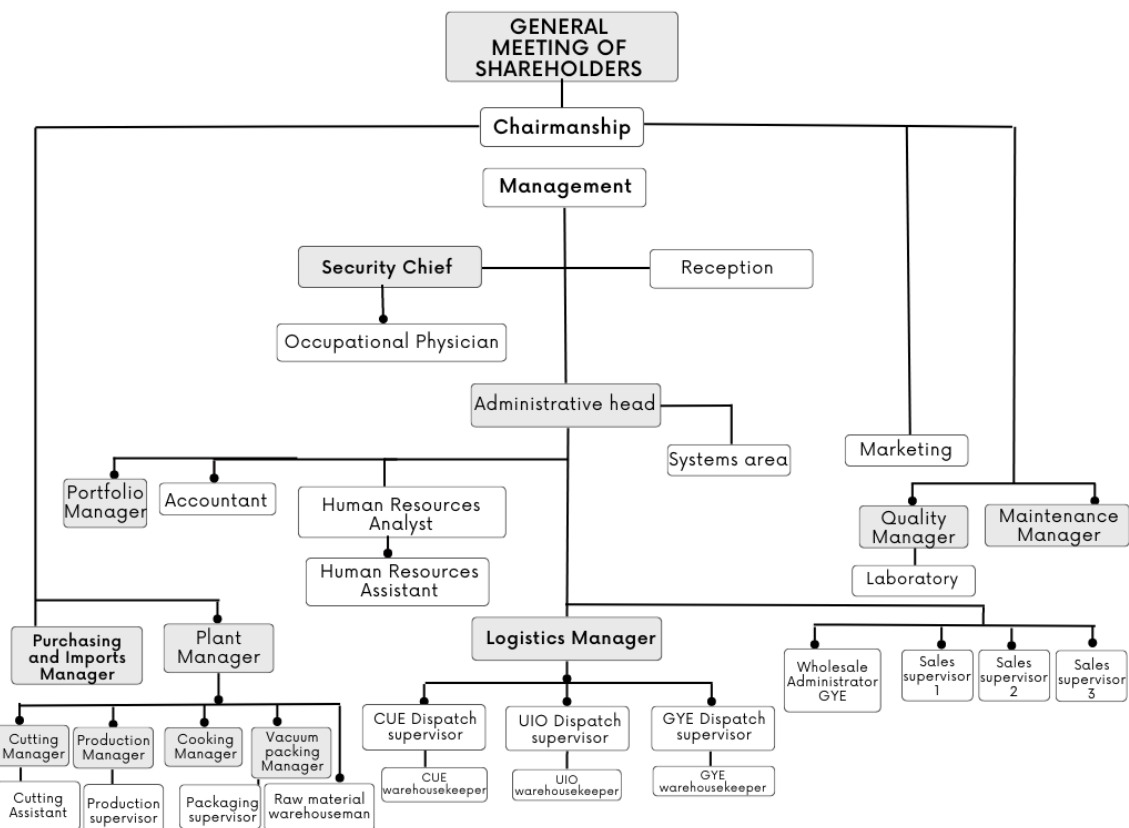
Nowadays, all companies must have a command structure in order to have a good organization, communication and administration within the company. The organizational structure is a tool that is made in order to be able to detail a certain

hierarchy of an institution or place (González, 2019). Therefore, the organizational structure has been fundamental and necessary for exercising the work of each employee.

Piggis' organization chart is described as follows. First, the general meeting of shareholders. This is followed by the presidency and the management, from which several area managers emerge.

As for the presidency, it is the one who is in charge of all the company's activities. On the other hand, management only has a few of the aforementioned positions, such as security, administrative, portfolio and logistics. Also, within the company there are several positions depending on the different areas such as: security manager, administrative manager, portfolio manager, purchasing and imports manager, plant manager, logistics manager, quality manager and maintenance manager.

Figure 1:  
*Organizational Structure*



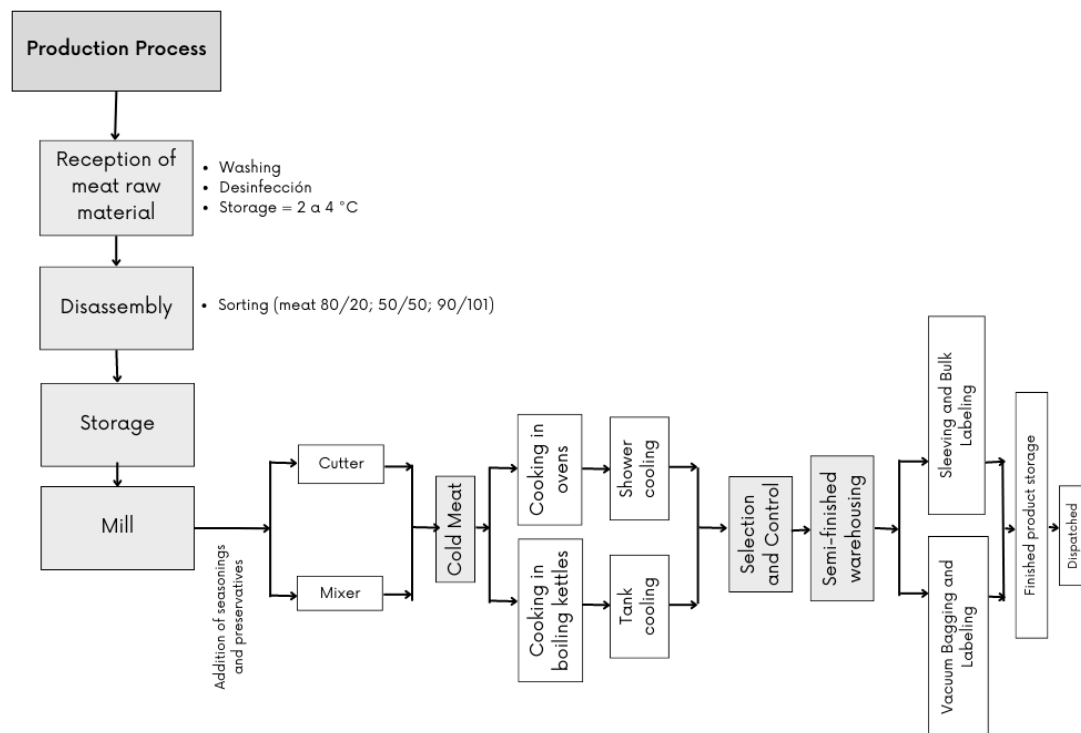
Source: Piggis (2022)

### **1.2.2. Production process diagram**

Piggis' production process depends on the product being developed. However, the entire process begins with the reception of raw materials, which are washed, disinfected, and stored at temperatures ranging from 2 to 4 degrees Celsius. The raw material is then disassembled and stored. After that, the development of the product itself begins, passing through the mill where seasonings and preservatives are added. Then, it goes through chopping or mixing to finally obtain the sausage. For example, salami goes through the mill and then through the cutter, ham goes through the mixing process and is then made into sausage, as it consists of whole pieces of meat, and sausages and mortadellas go through the mill and then through the mixing process. Afterwards, depending on the product, they are cooked in ovens or kettles. Sausages, chorizos, smoked sausages, and salami are cooked in ovens. On the other hand, hams and mortadellas are cooked in kettles. After that, the product is cooled in tanks when cooked in kettles and in showers when cooked in ovens. Subsequently, the product is semi-finished and passes through the selection and control area before being stored. Then, the product is vacuum-sealed or packaged in bulk to enable storage of the finished product and, finally, its dispatch.



Figure 2:  
*Process Diagram*

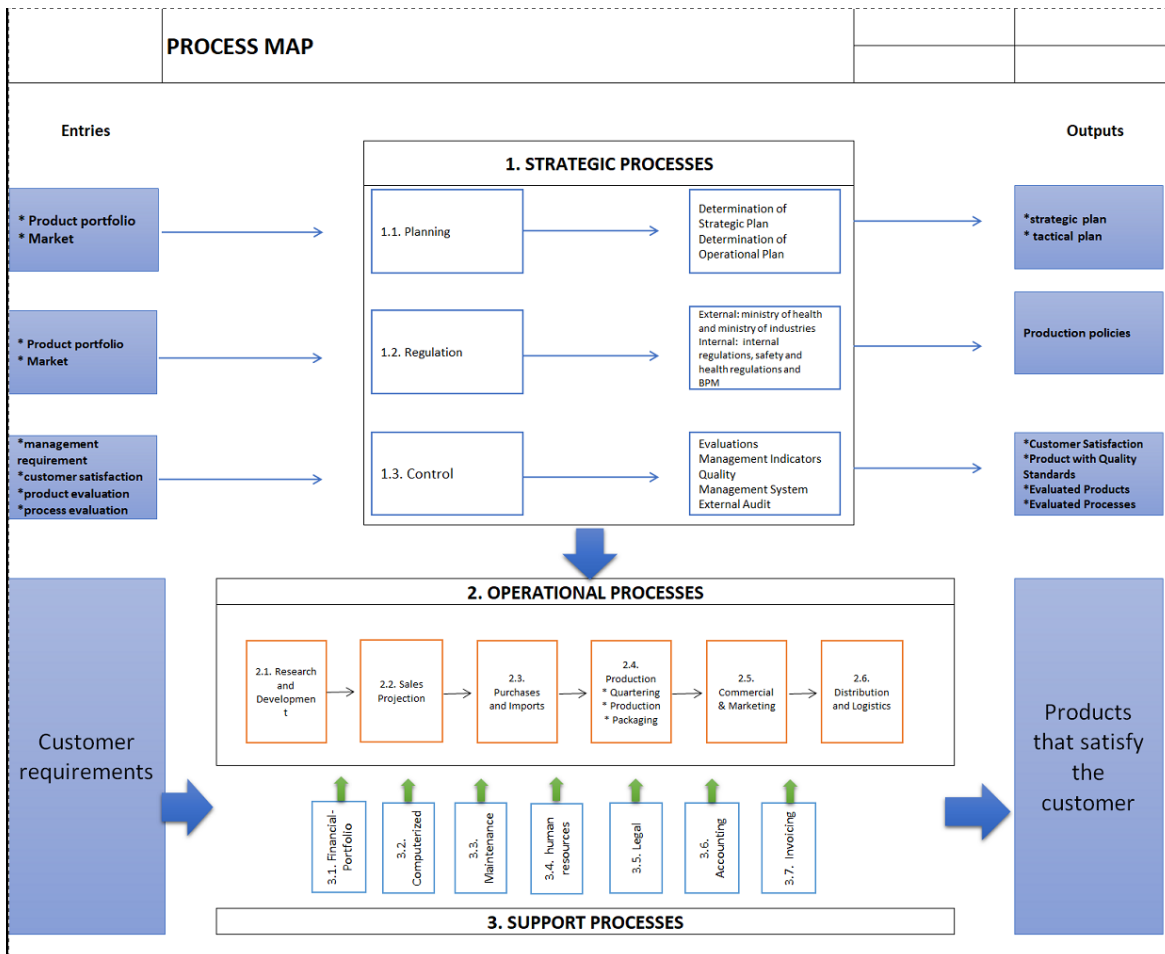


Source: Piggis (2023)

### 1.2.3. Process map

The process map is a workflow diagram that companies use to capture the management of the company. According to the Education and Quality Unit, "the process map provides a global-local perspective, forcing the "positioning" of each process with respect to the value chain. At the same time, it relates the purpose of the organization to the processes that manage it" (Macias, et al., 2007). It has three main sections: strategic processes, operational processes and support processes.

Figure 3:  
Process Map



Source: Piggis  
Prepared by: Piggis

To begin with, the strategic and operational processes must always include the product portfolio and the assigned market. First, planning must be done in which the strategic and operational plan is determined. Second, the internal and external regulations must be reviewed to comply with production policies. And third, control is carried out through evaluations and quality audits to meet management requirements, customer satisfaction, and product and process evaluations.

Next, the company must proceed with its operational processes, starting with determining customer needs. First, it begins with product research and development. Second, a sales projection is made. Third, purchases and imports of raw materials are made. Fourth, the products are manufactured from cutting to packaging. Fifth, we proceed to the advertising and marketing area. Sixth, logistics and distribution of the finished product are carried out to satisfy the customer.

And finally, the company complies with its support processes in order to reach customers with products that satisfy them. These support processes are: financial, systems/computer support, maintenance, human relations, legal, accounting, and invoicing.

#### **1.2.4. Strategic map**

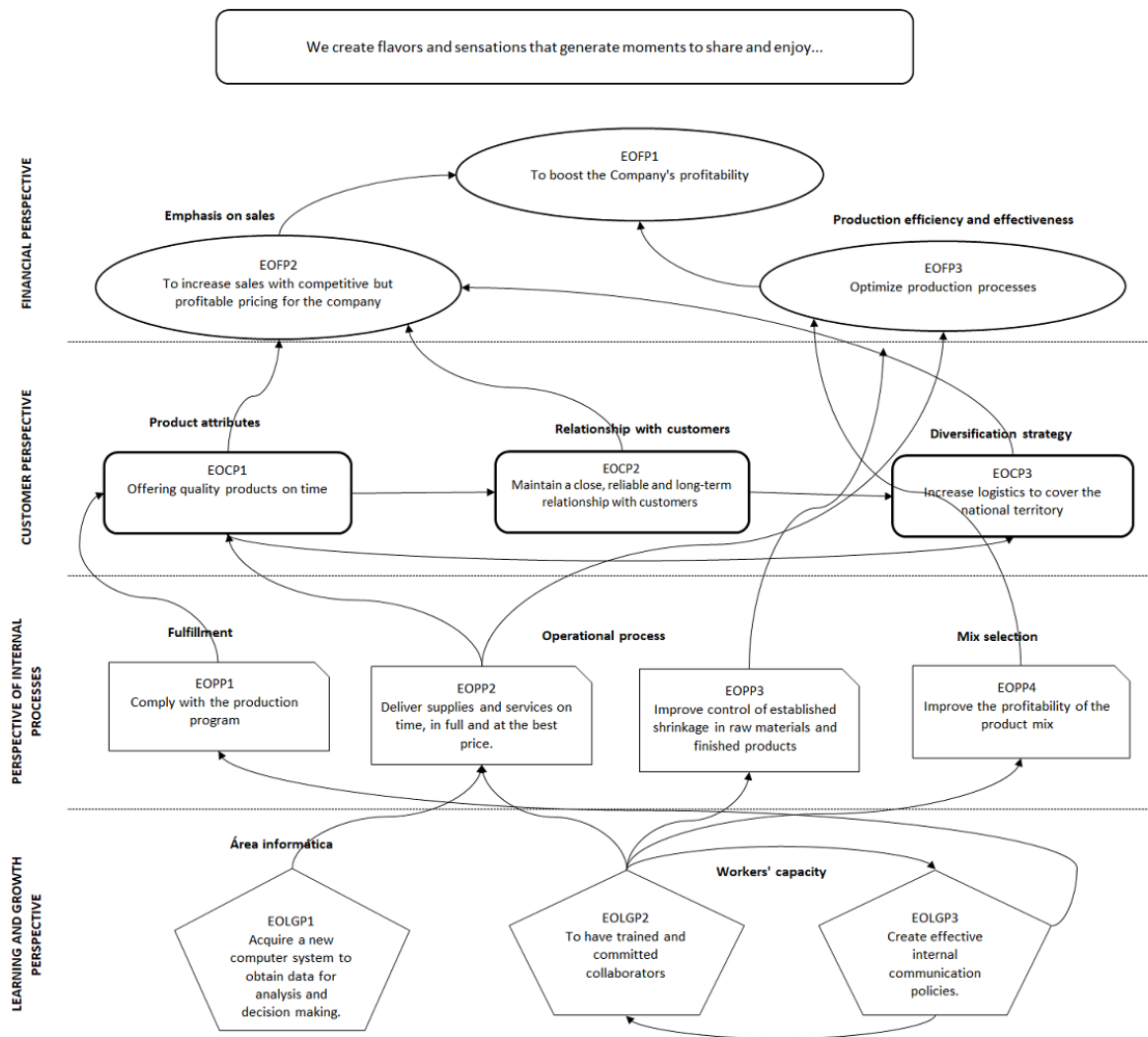
Piggis' company strategy is divided into four perspectives. The financial perspective is based on the information technology area and the capacity of the employees. On the other hand, the internal process perspective focuses on compliance, operational processes, and mix selection. The customer perspective, on the other hand, focuses on product attributes, customer relationships, and diversification strategy. Finally, the financial perspective emphasizes sales and production efficiency and effectiveness.

First, the objective of having trained and committed employees and creating effective internal communication policies must be met. This way, the production program will be fulfilled, and the profitability of the product mix will be improved. Additionally, a new computer system must be acquired to obtain data for analysis and decision making in order to deliver inputs and services on time and at the best price, and to improve control of established waste in raw materials and finished products. Once all the above activities have been completed, the objectives of offering quality products on time, maintaining a close and reliable relationship with customers in the long term, and expanding logistics to cover the national territory can be achieved. This will optimize production processes and increase sales with competitive but profitable prices for the campaign. Consequently, the main strategic objective of boosting the company's profitability will be achieved.

Figure 4:

*Strategy Map*

## STRATEGIC MAP OF PIGGIS EMBUTIDOS PIGEM



Source: Piggis  
Prepared by: Piggis

### 1.2.5. Product distribution

The company distributes its products nationwide, both with its own trucks and outsourced trucks. The trucks must have a thermo King, which is a refrigeration system; this is mandatory because it is necessary to comply with the cold chain to ensure the safety of the product.

### 1.3. SWOT Analysis

The SWOT analysis is an analysis that allows one to observe and identify the internal characteristics, both bad and good, of an institution, company, person or project in order to create a strategic plan taking advantage of its potentialities (Ponce,

2007). (Ponce, 2007). It also allows us to identify the opportunities and obstacles that could influence the company from the external environment.

### **1.3.1. Fortress**

The strengths of the SWOT analysis refer to the internal part of a company. They are the skills that the company has in its favor in the way of running the business. (López & Flores, 2013).

- The company has a variety and diversification of products.
- Piggis complies with all legislative requirements.
- Each year the company achieves growth in the market.
- Teamwork and teamwork are encouraged within the company.
- The staff is trained and experienced.
- It has the appropriate technology for process automation.
- The company is certified under Good Manufacturing Practices (GMP).

### **1.3.2. Opportunities**

The opportunities of the SWOT analysis refer to the external part of a company. They are the moments, within the business, in which the company takes advantage of its benefit, in the face of any fact, in order to grow (Sarli, González, & Ayres, 2015).

- The company will have a new infrastructure. The new plant will be on a larger site
- There are new product lines that help the company to create new sausages.
- GMP certification provides market openings due to quality standards.
- Market research to new generations
- New information technology is available.
- The trend towards fast food encourages people to buy smoked products.
- Piggis acquires new technology every year to improve its production processes.

### **1.3.3. Weaknesses**

The weaknesses of the SWOT analysis refer to the internal part of a company. They are elements that affect the company, lowering its level of competitiveness by not being able to face a certain circumstance. (Arias, 2007).

- The company needs to make customer service more personalized.
- The company needs more physical space.
- Product diversification is required in the meat sector.
- There is a lack of product knowledge on the part of employees.
- There are deficiencies in the operating system.

#### **1.3.4. Threats**

Threats in the SWOT analysis refer to the external part of a company. They are uncontrollable events that affect and put the company at risk.

- There is international uncertainty due to the war between Russia and Ukraine.
- Post-pandemic effects affect the population and therefore the company.
- There is a shortage and/or increase in the cost of raw materials.
- Opening of artisanal companies
- Having to find new suppliers of raw materials
- Changes in consumption habits such as, for example, several people becoming vegan or vegetarian.

#### **1.4. PESTEL analysis**

PESTEL analysis is a tool that companies use to be able to investigate the general external environment to identify the threats or opportunities that the business could have (vecdis, 2021). This analysis focuses on 6 factors which form the same name in English: political, economic, social, technological, ecological and legal factors.

##### **1.4.1. Politician**

###### **Government:**

In 2017, Lenin Moreno Garcés, after two terms as vice president during the term of office of Rafael Correa's government, won the presidency of the Republic of Ecuador. Despite having been part of Rafael Correa's government for a long time, Lenin Moreno, at the beginning of his terms demonstrated his enmity with Rafael Correa, showing that the country had fiscal deficit of USD 4.7 billion and explaining that the debt was much larger than previously stated by Rafael Correa's government. As a result of this, Lenin Moreno made decisions to combat the crisis such as: prioritizing public

investment, promoting the use of digital payments and setting measures of simplicity and moderation in spending and use of resources (FlacsoAndes, 2017). Also, in his candidacy he announced the great national dialogue to be able to have a greater understanding with some groups at the time of decision making to be able to achieve in a certain way a social support. Likewise, in 2019 President Lenin Moreno made the decision to withdraw the country from the Union of South American Nations (UNASUR) due to the lack of participation and contribution by the member states (General Secretariat of Communication of the Presidency, 2019).. In 2020 the global coronavirus pandemic arrived in the country and at that time the president decreed in March State of Exception to prevent the spread explaining that by that time there were already 7000 dead in the world and 2 people in Ecuador due to COVID-19 (General Secretariat of Communication of the Presidency, 2020). At the end of his presidency, Lenin Moreno ended his term with poor management of the pandemic, unable to handle the situation and Ecuador reached 1,062 points, occupying the penultimate place in Latin America in country risk (Sánchez, Vayas, Mayorga, & Freire, 2021).

On the other hand, the current president of the Republic of Ecuador is Guillermo Lasso who achieved the presidency in 2021, having Dr. Alfredo Borrero as Vice President. His priority was to start the "9/100 Vaccination Plan" with the objective of vaccinating 9 million people in his first 100 days in office against COVID-19 (Ministry of Public Health, 2021). Also, his first decrees were: to eliminate all information on people with debts of up to \$1000, to transform the Secretary of Sports into the Ministry of Sports and that Vice President Borrero takes control in the area of health. (Europa Press International, 2021). Upon taking office, the president was faced with a crisis caused by COVID-19. Because of this, the president opted to reach an agreement with the International Monetary Fund (IMF) to reactivate the country with human development bond projects (El Universo, 2021). As the new year 2022 arrived, problems began to increase. First, there was the National Strike in Ecuador carried out by the Confederation of Indigenous Nationalities of Ecuador (CONAIE) to oppose the fuel increase and for this reason the president decreed a state of emergency (Zibell, 2022). At the same time, due to the disagreement between organized crime gangs, there were riots in some of the country's prisons which left several people injured and others dead and the insecurity in the country increased (Cañizares, 2022). On the other hand, in the year 2023, a few months before the beginning of the year, several problems have

occurred in the country such as: the president has been involved in a controversy in which he is accused of corruption in public companies for which he will be impeached (Cañizares, 2023) and, in the month of March, crime has stood out with several murders and extortions of the so called "vacunadores", for which the president opted to allow the use of weapons to the population only for self-defense. (BBC News World, 2023). After several drawbacks in the mandate of President Guillermo Lasso, according to AsoBanca's macroeconomic bulletin regarding country risk, "Ecuador reached 1,945 points, on October 13, 2022, which is an increase of 1,042 percentage points in four months" (Boletín Macroeconómico Octubre 2022, 2022, p.3). As a result of the economic upheaval and all the inconveniences the country has had, Ecuador's country risk is expected to be higher in 2023.

As there are threats of coup d'état, danger of impeachment and more mobilizations, it has increased the unwillingness to a good governance. Therefore, this complicates the activities of the companies since it slows down commerce and consumption. All companies in the country are affected by not knowing if there will be another national strike that will prevent the distribution of products. Likewise, companies tend to be at risk of robbery due to the increasing crime in Ecuador.

### **Political climate:**

Nowadays, the government of President Guillermo Lasso, has had several obstacles and one of the most recent is the denial of his 8 proposals in the loss of the referendum held on Sunday, February 5, 2023 in order to promote security, strengthen democracy and protect the environment. (BBC News World, 2023). As a consequence, the president rearranged some people in his cabinet. Generating insecurity among social organizations and other political parties, there has been a proposal that the president resign from office or start the crusade again. In a short time, the president of Ecuador has been surrounded by several controversies which imply the instability of the country.

Also, corruption has been a key element within the country as it has generated chaos. Because of this, the president created the Government Counselor's Office for Governance and Institutional Management and the Secretary of Anticorruption Public Policy. However, 75% of the people think that the government is doing a bad job in dealing with corruption. (Citizenship and Development Foundation, Transparency



International and GIZ Ecuador, 2023). Similarly, at the beginning of 2023, the Attorney General's Office reopened the "León de Troya" case, where they accuse the president's brother-in-law, Danilo Carrera, and Rubén Cherras of being linked to a businessman of Albanian origin who possibly deals with drug trafficking and money laundering, explaining that the government of Ecuador has been backed by the Albanian mafia (Loaiza, 2023). Therefore, having an unstable and insecure political climate generates fear of strong changes in the country. In other words, the fact that the president can be replaced any day, means that commercial laws can also be modified.

### **Government policies:**

Government policies such as the National Development Plan and the Customs Trade Facilitation Title Regulations have served as drivers for the growth of local companies in the country.

One of the policies of the National Development Plan is, "to generate decent work by promoting the use of built infrastructure and installed capacities." (Ministry of Economic and Social Inclusion, 2018, p.82). In this case, the company Piggis has grown as a company and little by little it has expanded. This is why, the company has a new project that will make it grow much more in its production and sales. The goal is to build a bigger warehouse than the one they already have, in another place, so that their employees can work in a place according to the level of production they have today.

Also, according to Art. 26.1. of the Regulation to the Title of Customs Facilitation for Trade published in Official Regulation No. 452, companies that acquire the exemption to trade taxes with the signing of an investment contract will have a limit of imports of raw materials according to the amount of the investment detailed in the contract. (National Customs Service of Ecuador, 2011, p.20). With this law, the government at the same time ensures that people do not keep their domestic production and that there is a local consumption of livestock. However, this means that, on certain occasions, the company has difficulty finding raw materials and there is little variety to choose from to supply Piggis.

### **Fiscal policies:**

The labor laws of Ecuador determine what is allowed, not allowed and the duties of workers, employee and employer in the country. According to Art. 15. of the Labor Code, the trial contract will have a duration of ninety days in order to decide if it is suitable for the work in that company. The boss may not have employees performing a trial contract at any time; that is, once the trial contract has ended, the same person may not repeat another trial contract. (Ministry of Labor, 2012, p.10).

This is favorable for the company, since having this trial period allows the company to analyze the way the employee works and identify if he/she is competent for the job.

Also, Ecuador has several holidays decreed by the Government, so this affects Piggis. According to Art. 65 and 67. of the Labor Code, the boss or owner of the company cannot force anyone to work when there are rest days or mandatory vacations and, if attendance to work is necessary, he must pay a remuneration. (Ecuador Information Company, 2020, p.15).

In this case, Piggis is a necessity food company, so it must work 24 hours a day, regardless of vacations. And it must also pay workers when there are holidays because, if sausage companies had a break, the population would not be able to consume their products and there would be a shortage of them.

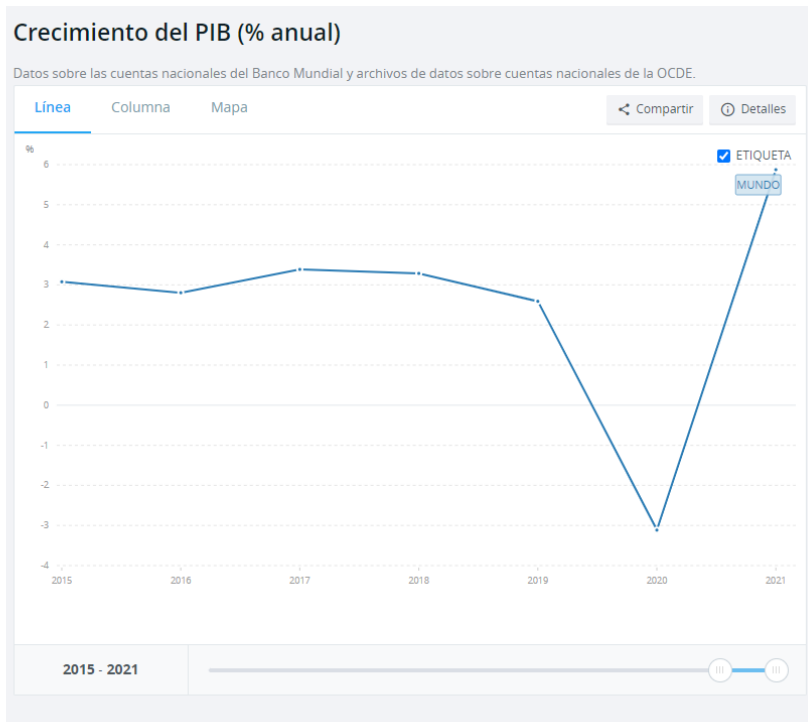
#### **1.4.2. Economic**

##### **GDP production level:**

According to the World Bank (2023), over the years, between 2015 and 2019, Ecuador's GDP remained between 3%, with a significant drop in 2020 due to the global pandemic caused by COVID-19 and in 2021 with a slight improvement of 5.9%.

Figure 5:

*GDP growth Ecuador*



Source: World Bank

On the other hand, the Central Bank of Ecuador confirmed that the annual GDP for 2022 was 2.9% (Central Bank of Ecuador, 2023) and assumes that by 2023 there will be an expansion of 3.1% (Central Bank of Ecuador, 2022). In other words, GDP between the last two years has been leveling off after the crisis of 2020. In other words, during the first years the GDP has been maintained. However, as a result of the global pandemic, in 2020 the country had a shocking decrease but the following year the GDP grew.

Although the increase in the percentage of GDP in 2021 is notorious, it is important to remember that in the previous year there was a decrease due to the pandemic, and if there had not been a pandemic, the impacting increase in 2021 would not be more than a stable GDP, remaining the same as in previous years.

Ecuador's Gross Domestic Product has not affected the company in any way, since it has managed to maintain itself over the years. The only time when the country and the companies can be affected is when there is a world crisis like the one that occurred in

2020, which completely stopped production and administration in all companies so that, since they did not work, they had no income and the GDP decreased.

### **Exchange Rate and Monetary Policy:**

Ecuador has a dollarized economy. It has a different impact on competitiveness and inflation. For example, inflation affects Ecuador, but they are more resilient because they depend on a strong economy, which is the United States. However, if that strong economy takes a hit, Ecuador will immediately be affected.

The war between Ukraine and Russia has had a major impact on the world economy. This war occurred because Ukraine intended to be part of the North Atlantic Treaty Organization (NATO) and the European Union (EU) and Russia did not agree with NATO crossing and invading its borders. So, Russia sent military space fighters. This has affected several nations, mainly Ecuador, which in 2020 destined 4.5% of its exports to Russia and Ukraine for products such as bananas and flowers. (Kevin Espinoza, 2022, p.2-4). Also, after the war, the supply of raw materials has decreased and prices have increased. According to the report of the Economic Commission for Latin America and the Caribbean (ECLAC),

Rising energy and, in general, commodity prices, worsening supply problems and increased domestic demand in developed economies have resulted in a boost to global inflation. (ECLAC, 2022, p.3).

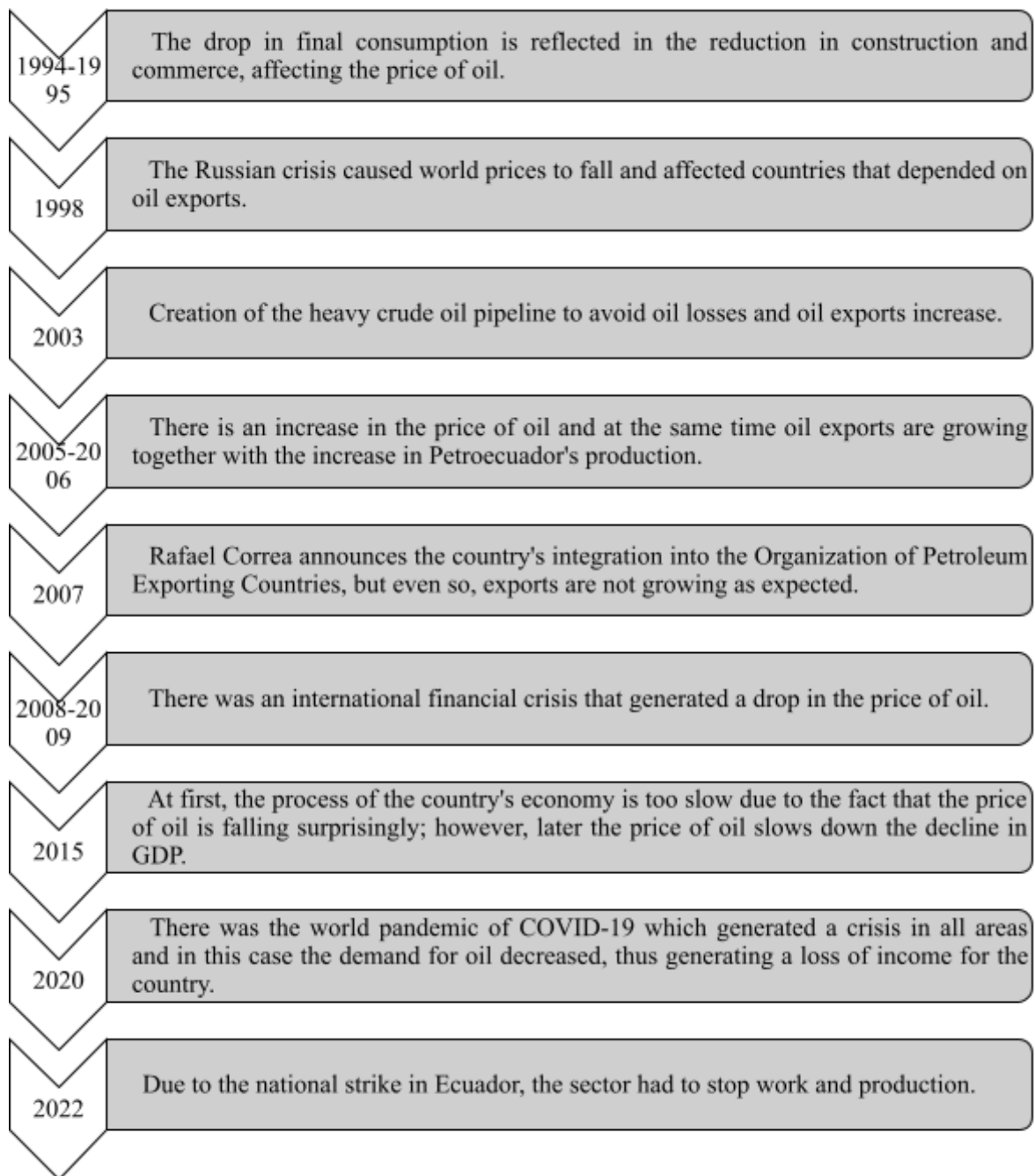
Therefore, the only solution that several economies have chosen to avoid inflation is to increase the monetary policy interest rate. Consequently, the United States made the decision to raise the interest rate. (BBC News World, 2022).

The case of Silicon Valley Bank has also been one of the most shocking this year. The bank collapsed because years ago it invested in bonds because they had almost no interest. However, the Federal Reserve increased interest rates in order to keep up with inflation and that is when the bank was affected because when rates go up, bond prices go down and it also increases the cost of bank loans. Because of this, several technology companies took the decision to pay their debts and users took the decision to take their money out of the bank (Ziady, 2023).

In other words, these problems have caused interest rates to start to be rethought in order to avoid bank bailouts. All this may hit and, since Ecuador does not have its own currency, it cannot enter into adjustment processes and issue currency, so the country would be affected by the increase in the cost of financing. And also, crises in U.S. banks, being strong banks worldwide, may affect and destabilize other banks throughout the world and there is a likelihood that banks in Ecuador will also be affected.

**Economic cycle:**

In recent years, the main source of income and an important element for the country's economy has been oil. Oil is exploited in the Santa Elena peninsula and in the Ecuadorian Amazon.



(Ullauri, 2010; Sánchez, Vayas, Mayorga, & Freire, 2021; Banco Central del Ecuador, 2022).

This issue does influence and could affect the company because, if the country's economy declines, the economy of its population also declines. Therefore, people tend to consume less in every sense and even if Piggis sells staple products, people will not consume as much and it will reduce its sales. Likewise, if the country's economy is stable, the population's economy will also be stable and they will consume much more.

### **1.4.3. Socio-cultural**

#### **Demographic situation:**

According to data from the National Institute of Statistics and Census (INEC), which are collected until 2010, the growth rate of the regions of Ecuador is: the Amazon, the highest, with 3.33%; followed by the Insular region with 3.32%; then, the coast with 1.90%; the highlands with 1.84% and the undemarcated areas have a growth rate of 1.79%. (Carrillo, 2012, p.13). On the other hand, according to the World Bank, the inactivity rate of the female population between 25 and 29 years of age has increased by only 1% over the last five years, reaching 9%. On the other hand, the male population in the same age range has maintained the same inactivity rate of 9% over the last ten years (World Bank, 2021).

If the growth rate in the sectors increases, there will be a larger labor force, more economically active people and it will be favorable for the company since it will be foreseen that the market has a growth potential and therefore the company. Also, this influences the company because according to the growth rate, the sales areas can be determined, since if there is not a large number of people in a place, it is not convenient for the company to go all the way to a certain place and not sell what is required. On the other hand, the data of the inactivity rate helps the company to identify that women have been less inactive every day and that men are the ones who have remained, so when hiring employees there will be more male options.

#### **Lifestyle:**

Ecuador is considered a developing country. In the year 2021 the incidence of income poverty was 32% and in the year 2022 it was 25% and, extreme poverty is 10.7% while a year earlier it was 14.7%. (INEC, 2022, p.3). This means that, little by little, the country has been making progress and reducing poverty.

Similarly, the country has 5 socioeconomic groups which are: level A which is 1.9%, level B which is 11.2%, level C+ which is 22.8%, level C- which is 49.3% and level D which is 14.9% (INEC, 2011). In other words, the majority of the Ecuadorian population is in level C-, lower middle class.

In this case, the Piggis company is not affected since they have products for all socioeconomic classes, from basic daily necessities to exclusive products, always with the same level of quality.

### **Social and cultural factors:**

Ecuador's main languages are Spanish, Quechua and Shuar. The last two are intercultural because they are official languages of different peoples of the nation. In the country, there is an ethnic diversity in which the indigenous group is the oldest, the African Americans who have fought to avoid exclusion and the mestizo farmers who stand out for their beliefs, celebrations and nutrition. (Rodriguez, 2021, p.18). Due to globalization, there will always be changes around the world, therefore, the cultures of Ecuador have also arisen. Although there are changes by certain people from other cultures, most people do not forget their origin. Lately, the new generations are those who tend to be more informed about the outside world and tend to generate new ideologies and beliefs.

This affects and does not affect the company at the same time. It does not affect the company because as long as people from certain cultures want to innovate and learn more about the world, there may be more specialized people who collaborate in the company or enter the business world. On the other hand, it can also affect if the company stays with the same product and does not innovate over time, because customers will go to another one that is bringing out more variety of products at every moment.

### **Cultural barriers:**

Cultural barriers are present in Ecuador as in other countries. These stand out much more depending on gender. Indigenous women, both in their villages and in the city, are at a disadvantage in every working field. The idea that women should always perform domestic work or be in charge of work on the land, minimizes their labor causing them to be paid less than men or even less than the salary of women in the city. (Radcliffe, 2014). Similarly, a cultural barrier that predominates in the country is Venezuelan migration. According to the Office of the United Nations High Commissioner for Refugees (UNHCR), "Ecuador hosts the third highest number of refugees and migrants from Venezuela in the world, with just over 513,000 people



estimated" (2022). When Venezuelans arrive in the country, they look for work in order to get ahead, but not all of them have been able to get it.

Cultural barriers affect the company to a certain extent, since in some cultures women do not expect to receive the same salary. Consequently, men do not make sufficient effort. And also, the migrants that have arrived in the country, at the beginning, benefited the companies and generated employment; however, now there are not so many job offers for both Ecuadorians and Venezuelans.

#### **1.4.4. Technological**

##### **Internet access:**

Today, the Internet is a key tool for communication and education. According to INEC (2022), 60.4% of households have internet access, 52.2% of people have a smartphone and 8.2% of the population suffers from digital illiteracy.

In this case, this in a way does not affect the company Piggis since it works selling to all segments with digital marketing and also through television and radio. But, at the same time the company is affected since it is managed with an application through which it can review the invoices that are pending payment. Another difficulty is that the entire ordering system of the company is through the internet, so there are areas in the country where there is no internet, so the seller has to wait for connectivity to be able to send the order.

##### **Technological Changes and Advances:**

Although there are other countries with technological innovation at every moment, Ecuador has also been progressing in this area. In 2009, the Ministry of Telecommunications and Information Society (MINTEL) was created. Internet connections have grown in the country, fiber optics have been installed, browsing speed has increased by 50% and the Mobile Classrooms program was implemented (Ministry of Telecommunications and the Information Society). Although there are advances in Ecuador, it should be emphasized that most areas of technological investment have been technology companies with 67.8% and commercial companies with 56.9%. (Martinez, 2022).

On the other hand, technology is constantly being renewed within the meat industry; however, new machinery is not precisely purchased in Ecuador, but rather abroad.

The company, in this case, renews its machinery every year to speed up production processes, since today machines are much faster than man. The Piggis company is affected in a certain way because it has to turn to other industrial machinery suppliers outside the country in order to obtain good quality machinery at a lower cost.

#### **1.4.5. Ecological**

##### **Weather:**

The climate in Ecuador is very changeable and depends on the area. However, the country in this year 2023 has presented heavy rains which have caused massive flooding, landslides and landslides. First, in the city of Guayaquil people had to go to shelters due to flooding (Sorto, 2023). Second, there was the landslide in Alauís that, although the instability of the mountains had already been reported, the heavy rains generated the same. Leaving some dead, several injured and missing. (Fajardo, 2023).

Today, the weather in the country does affect the Piggis company to some extent because of several landslides, the roads are damaged and there is a delay in the delivery of products in other provinces, and there is also a shortage of beef due to the fact that sometimes there is not enough pasture for the animals to feed because of a lot of rain.

##### **Environmental policies and environmental regulations of the sector:**

Companies in the country must have an approved environmental license under the regulations of Official Gazette Supplement No. 983 of the Organic Environmental Code (COA). According to Art. 237. of the COA, "every generator and manager of hazardous and special waste and residues, shall obtain administrative authorization in accordance with the established procedures and requirements" (Ministry of Environment, Water and Ecological Transition, 2017). In other words, both the company that generates hazardous waste and those in charge of collecting, must obtain a permit. On the other hand, having a manufacturing area, noise is an important factor to be able to start production. The Ordinance for the Control of Environmental Pollution Caused by Noise Emissions establishes that the authorized noise level will depend on

the area where the noise is emitted and that a field measurement is necessary for this purpose (GAD Municipal Cuenca, 2017).

On the subject of environmental policies, these do not affect the company because they are regulations which help the company to have good environmental management, ensuring at the same time the integrity for the city as well as for itself.

#### **Energy resources:**

A key resource for companies is water. Companies use this resource mainly for cleaning. According to Art. 38, the Single Water Authority prohibits the use of wastewater that tends to affect the health of the population. (ETAPA, 2014).

For Piggis, this is not so favorable in some ways because it must have a wastewater treatment plant in order to use the water provided by ETAPA.

#### **1.4.6 Legal**

##### **Regulations specific to the category of the business:**

All manufacturing or production companies must comply with certain requirements such as: the sign permit certificate (municipality), the operating permit (municipality), the fire department permit, the ARCSA permit, and pay the patent to the municipality in April of each year. Similarly, meat product companies must comply with INEM standard 1338, which establishes the obligations that the company must fulfill. For example: the raw material must remain at a certain temperature of up to 7°C, the temperature in the cutting area must be a maximum of 14°C and the temperature in the refrigerators at the points of sale must be between 0°C and 4°C in order to be able to store the product properly (INEM, 2011).

In this case, when talking about the requirements that companies must comply with, it is not considered whether it is favorable or not. However, both the requirements of the municipality and those of INEM standard 1338 are imposed to ensure the safety and health of Piggis' employees and consumers.

##### **Government stability:**

Implementation of the new product labeling regulation where the traffic light was implemented on the labels. According to INEN, each product label must show the level of fats, sugars or salts determining the level of high, medium and low in order to improve public health (INEN, 2011).

In this case, the company has to make a total change of art, stock changes. At the beginning of this law, there was the alternative of making a depletion of the previous products in order not to waste; however, there were products and materials with a high stock that were a waste and loss.

## **CHAPTER 2: QUALITY CERTIFICATIONS**

After having conducted an analysis of the company, it is time to analyze the different quality standards that provide certifications to food companies such as Piggis. For this reason, this chapter will detail the concept, approach, structure and steps to obtain the different international certification standards.

### **2. QUALITY MANAGEMENT SYSTEMS**

A quality management system is a set of elements that allows organizations to design, develop, monitor and improve the activities necessary for the fulfillment of their objectives, through policies and processes set to provide products and services that meet quality requirements (Alzueta & Roldán, 2012, p.7). This system serves to provide confidence to customers and sustainability to organizations.

#### **2.1. Quality concept**

The word quality is a "property or set of properties inherent to something, which allow us to judge its value" (Real Academia Española, 2023) and has recently been the most commonly used word within companies when talking about the products or services they offer.

The history of quality was born in the Middle Ages where craftsmen increasingly improved and supervised their products and, as a consequence, businesses began to be recognized thanks to the quality of their products. Then, the Industrial Revolution came along to benefit craftsmen, transforming them into entrepreneurs, with mass production factories, and the inspection service became essential to produce. At the end of the 19th century, as production grew, problems in production deteriorated the quality of the product due to personnel shortages. To solve this, the first stage of quality development was implemented by making all companies have a quality control department by inspection. Later, at the beginning of World War II, the second stage of quality development took place. This stage was quality assurance, which confirmed 100% compliance with the quality requirements of military industry products, by means of statistics, in order to avoid the death of several soldiers when their parachutes did not open during the war. Also, the U.S. government implemented the quality certification system with the first standards, called Z1. After the end of World War II, the third stage

in the development of quality called the total quality process took place (Rodriguez & Rodriguez, 2009, p.87).

## **2.2. Total quality concept**

Total Quality is a process of constant improvement and prevention of problems that gives importance to the administration and processes that the company performs to obtain a product or service to offer. Also, in order to achieve quality, it is necessary that all the people who are part of the company are involved in the work of the company (Gumucio, 2005). Thus, the objectives of Total Quality are to reduce waste and costs by having the principle of zero defects in order not to generate waste, to work as a team, to guarantee delivery times and to preserve labor safety (Paladino & Ponce). In other words, quality must be present in all business areas from product design, the production phase to the company's after-sales service.

## **2.3. Types of Quality Management Systems**

The food industry is an industry in which the need for food quality is an important factor. To avoid poor production, food deception and contamination risks, food legislation has been implemented through institutions such as the International Organization for Standardization, Good Manufacturing Practices and Hazard Analysis and Critical Control Points, which guarantee the origin of each product.

### **2.3.1. ISO 22000:2018**

The ISO 22000 Standard is issued by the International Organization for Standardization (ISO), which aims to increase product competitiveness and facilitate trade processes by introducing products to new markets. ISO 22000 had its first version in 2005, and after some changes, the most current version is ISO 22000: 2018. According to INEN, it explains the requirements necessary to ensure the safety of food company products, resulting in the following for companies: improvement in healthiness and confidence, support in compliance with regulations and preparation for the resolution of possible problems in less time (2021).

ISO 22000 has 10 provisions:

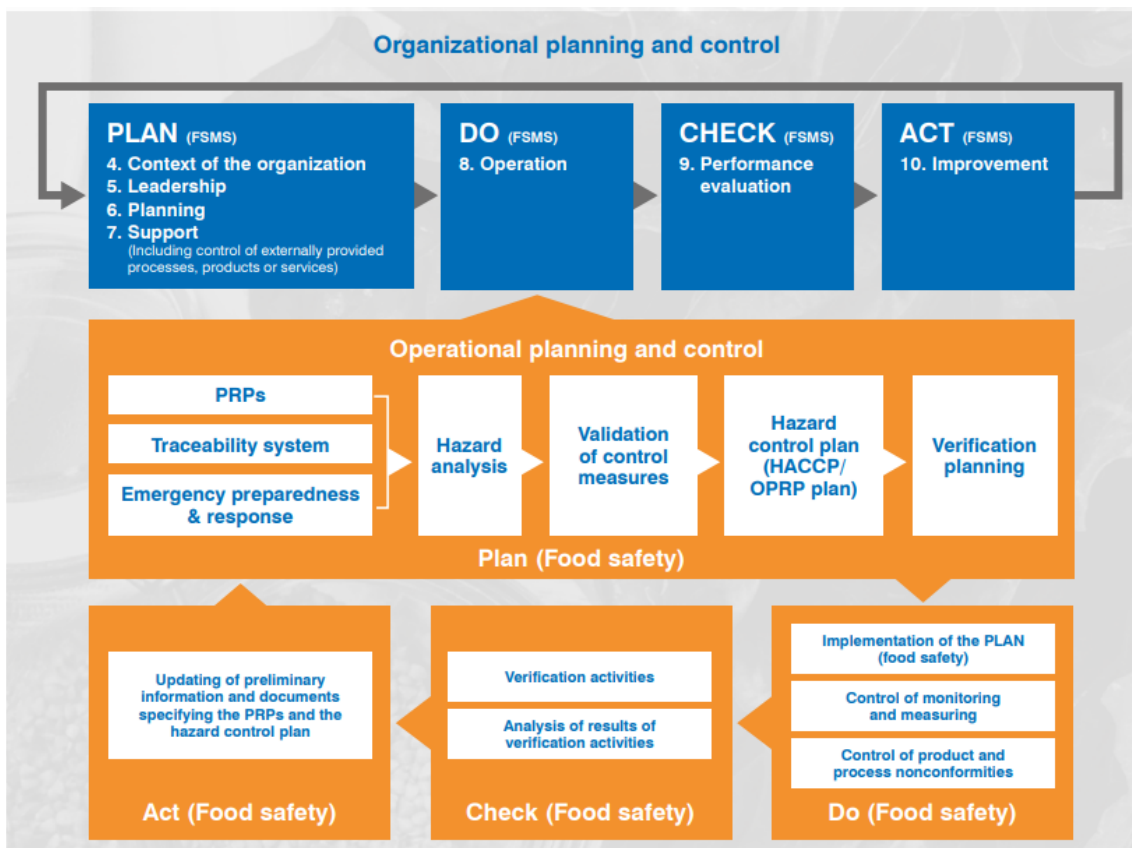
1. **Scope:** Determines the objective of the standard and the types of companies eligible for the application of this standard.
2. **Normative references:** In this standard there are no normative references; however, it is recommended to review some ISO standards, such as: 22004 which is based on the food safety system and is the orientation for the application of ISO 22000. (INEN, 2015)10013, which is based on the guidance for the documentation of information (International Organization for Standardization, 2021) etc., to better understand the same.
3. **Terms and definitions:** Here, terms and definitions that are frequently used by the standard such as: control measures, acceptable level, competence, externalization, risk, critical control point (CCP), operational prerequisite program (OPRP) and validation are set here.
4. **Company context:** The company should conduct an analysis of its current context, understand stakeholder interests, establish the scope of the Food Safety Management System (FSMS) and focus on the development and duties to comply with food safety.
5. **Leadership:** The administrative part of the company will have to ensure that both plans and objectives must be in accordance with the standard.
6. **Planning:** The company must make an internal analysis by setting the hazards and opportunities. Then, the company will program all its activities to solve its hazards and take advantage of its opportunities by complying and integrating it to the standard.
7. **Support:** The company must determine the support it has such as: resources, communication, competence; and ensure its correct operation.
8. **Operation:** This is where the Do phase of the PHVA cycle takes place. After obtaining the results of the analysis and studies on the company, applicable standards and customer satisfaction, the level of sufficiency of the company to comply with the requirements must be established. Similarly, it is important to perform: tests of all control measures, a risk control plan, a control of products and processes.
9. **Performance evaluation:** The level of work is evaluated through process improvement, internal inspections and assessment by the company's management.

10. **Improvement:** The company is required to take advantage of everything possible to obtain continuous improvement.

In order to comply with this standard, it is necessary to practice the principles of the PHVA Cycle, which refers to the strategy of plan, do, check and act for process improvement, together with the food safety principles of the management system. Then, in the principle of planning, the following are also realized: company context, leadership, planning and support; in the principle of doing, operation is realized; in the principle of verifying, performance evaluation is realized; and, in the principle of acting, improvement is realized (NQA, 2018).

Figure 6

*Schematic of the PHVA cycle of the ISO 22000 Standard*



Source: NQA, Global Certification Body

### 2.3.1.1. Steps for the implementation of the ISO 22000:2018 Standard.

The 10 steps to implement this standard are as follows: awareness training, policy and objectives, internal gap analysis, design documentation and process, implementation documentation and process, internal audit, organization of system



management review, gap analysis of implemented systems, corrective actions, and final certification audit (Tapia, 2018).

1. **Awareness training:** The company should inform and raise awareness, through meetings, among all personnel about the quality management system
2. **Policy and objectives:** The company should create quality standards and goals to assist in meeting system standards and training should be conducted constantly in all areas of the company.
3. **Internal gap analysis:** The company should review and compare the compliance of the systems with the required ISO 9001 quality system standards and all employees in key positions should understand the overall functioning of the company and map the processes.
4. **Documentation and design process:** The company must document the processes and must write and generate a manual and a work and process guide.
5. **Documentation and implementation process:** All areas of the company must carry out the processes and documentation done in step 4, and the company must carry out a study on what has been done according to the standard.
6. **Internal audit:** An internal audit should be carried out in the company to make changes in the deficiencies found in the company.
7. **Organize the management review of the system:** The management of the company must verify all important factors of the company that are related to the implementation of the ISO standard. For this, the standards, compliance with laws, objectives, results of the internal audit and problem control are verified. The company must also draw up an action plan and a review report.
8. **Deficiency analysis of implemented systems:** This analysis should be performed to know the level of compliance with the standard and, at the same time, to prepare the company for the final audit.
9. **Corrective actions:** The company shall correct all deficiencies explained in the internal audit.
10. **Final certification audit:** Once this audit is completed and all requirements are met, the company will receive the ISO 22000 certificate.

### 2.3.2. Good Manufacturing Practices

Good Manufacturing Practices (GMP) are the standards that regulate the work of companies such as: the operation, production, packaging and storage of foodstuffs. (Díaz & Uría, 2009). The objective of GMP is to improve their processes by complying correctly with the work, ensuring that a certain processed product does not harm health.

In order to comply with GMP standards, the company must comply with the following requirements: establishment and infrastructure; machinery; employee duties; raw materials and supplies; production procedures; bottling, labeling and packaging; and storage, distribution, transportation and commercialization. (Government of Ecuador. Administration of Dr. Gustavo Noboa, 2002).

#### 2.3.2.1. Steps for Granting and Registering GMP Certification

In order for a production company to obtain the Good Manufacturing Practices certificate, the following steps must be followed (Government of Ecuador. Administration of Mr. Rafael Correa Delgado, 2015):

1. ***Selection of the accredited inspection body:*** The manager or person in charge of the production plant must choose the body at the ARCSA (National Agency for Regulation, Control and Sanitary Surveillance).
2. ***Communication to ARCSA:*** The company manager must notify, 5 days prior to the audit, the time, date and person chosen. If this is not done, ARCSA may check that the production company is in compliance.
3. ***ARCSA accompaniment:*** The ARCSA can be present at audits whenever it wishes.
4. ***Delivery of the report:*** After the inspection, the accredited inspection body will have to deliver the report, report, control model and plant certificate to the company.
5. ***Application for registration with ARCSA:*** The owner or manager of the company must request ARCSA to register the certificate and the following must be attached: copy of the certificate, the audit report, the minutes and the control model.
6. ***Payment order:*** After ARCSA verifies the information submitted, the payment order for the certificate fees will be made according to the level of the plant.

7. **Economic rights:** These rights are fixed in basic unified salaries of the worker, thus determining the cost: industry with 5 SBU, medium industry with 4 SBU, small industry with 3 SBU, microenterprise with 2 SBU and artisans with 1 SBU.
8. **Payment validation:** After making the payment, proof of payment must be sent to ARCSA's e-mail address.
9. **Registration in the ARCSA system:** Once payment has been verified, the GMP certificate will be registered in the system.
10. **Term:** The term will be 5 years from the date of the license.
11. **Notification of changes:** If the production plant has any modifications, ARCSA should be notified for inspection.
12. **Verification:** If the report issued by the inspectors is false, the Ecuadorian Accreditation Service (SAE) will be notified.

### 2.3.3. ISO 9001:2015

ISO 9001:2015 is one of the most widely accepted standards worldwide. It is based on the quality management principles of ISO 9000. According to the standard, the principles are (ISO 9001:2015 Standard):

1. **Customer focus:** Here it states that, the people who are part of the manager must comply with this approach in which, satisfying the customer is the most important thing. It also explains that the manager has to make sure that the customer's needs and regulations, as well as the dangers that may affect it, are established, complied with and examined.
2. **Leadership:** In this case it is established that the manager must express his leadership and commitment in relation to the quality management system: through accountability, ensuring the availability of resources and compliance with standards and objectives, encouraging improvement and management of the process approach and risk-based thinking, and reporting on the value of effective quality management.
3. **People's commitment:** The company must always have people (employees) who are trustworthy, who have the maximum capacity to perform their work. Similarly, there must be good communication between all the people who are

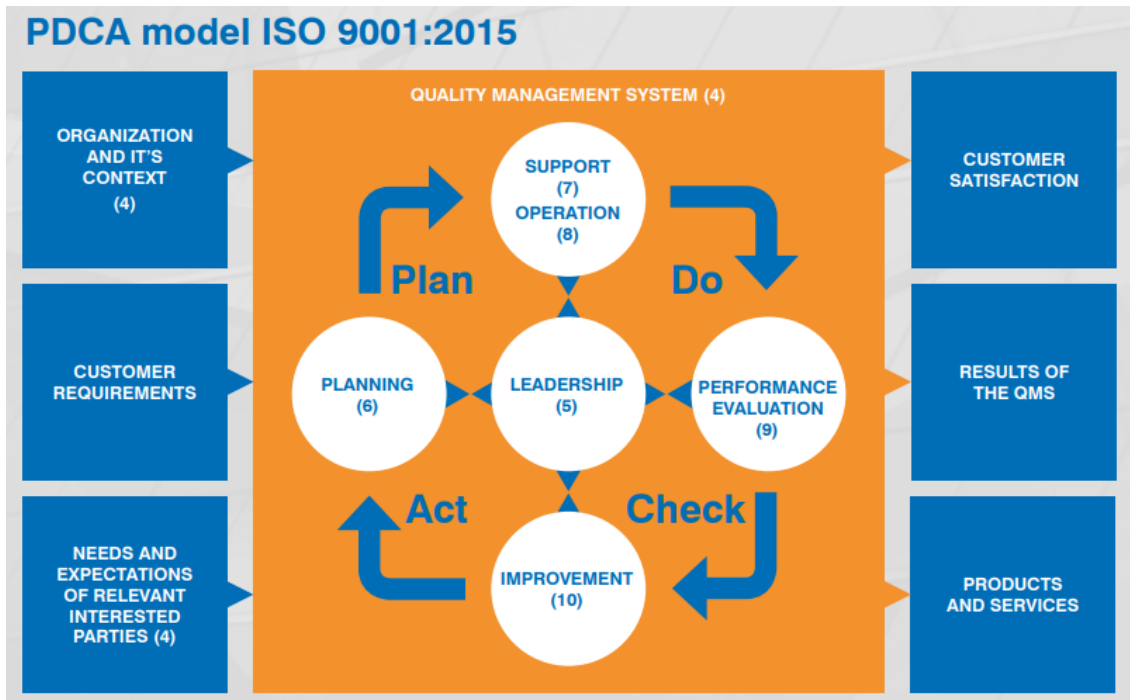
part of it, people must be prepared to improve their work, encourage teamwork and participation and allow opinions to share knowledge.

4. **Process approach:** This principle is based on the understanding and systematic management of processes that comply with quality standards in order to have a system that achieves its objective result through efficiency. The benefits that are generated by implementing the process approach are: the understanding of the obligations, the study of processes from the point of view of the added value, achieving efficient work and the improvement of processes through the review of data and information. In this standard, the PHVA cycle can also be adapted from chapter 4 to the last one.
5. **Improvement:** The business must establish opportunities for improvement and implement any activity to improve customer satisfaction. For example: decrease and avoid undesirable results, examine the future needs of the customer and the standard, improve the product or service, and improve the work of the quality management system.
6. **Evidence-based decision making:** It is explained that the company, in order to continuously improve, must review and analyze accurate information to be able to make decisions within the company.
7. **Relationship management:** This is based on the fact that relationships with stakeholders such as suppliers, partners and investors must be fixed in order to obtain a reciprocal benefit.

As mentioned above, ISO 9001 is also based on the PHVA cycle. In Plan, the following are determined: objectives and customer needs, organizational standards and define opportunities and hazards. Then, in Do, you must establish what has already been planned. Then, in Verify, the processes must be observed and calculated to determine the improvement in the scope of standards, objectives and needs, and report the effect and achievement. Finally, in Acting, the corresponding activities must be carried out to improve the work performed in every sense (INEN, 2008).

Figure 7:

*Schematic of the PHVA Cycle of the ISO 9001 Standard.*



Source: NQA, Global Certification Organization

### 2.3.3.1. Steps for the Implementation of the ISO 9001: 2015 Standard

The 10 steps to implement this standard are as follows: awareness training, policy and objectives, internal gap analysis, design documentation and process, implementation documentation and process, internal audit, organization of system management review, gap analysis of implemented systems, corrective actions and final certification audit (NQA, 2015).

1. **Awareness training:** The company should inform and raise awareness, through meetings, among all personnel about the quality management system
2. **Policy and objectives:** The company should create quality standards and goals to assist in meeting system standards and training should be conducted constantly in all areas of the company.
3. **Internal gap analysis:** The company should review and compare the compliance of the systems with the required ISO 9001 quality system standards and all employees in key positions should understand the overall functioning of the company and map the processes.

4. **Documentation and design process:** The company must document the processes and must write and generate a manual and a work and process guide.
5. **Documentation and implementation process:** All areas of the company must carry out the processes and documentation done in step 4, and the company must carry out a study on what has been done according to the standard.
6. **Internal audit:** An internal audit should be carried out in the company to make changes in the deficiencies found in the company.
7. **Organize the management review of the system:** The management of the company must verify all important factors of the company that are related to the implementation of the ISO standard. For this purpose, the standards, compliance with laws, objectives, results of the internal audit and problem control are verified. The company must also draw up an action plan and a review report.
8. **Deficiency analysis of implemented systems:** This analysis should be performed to know the level of compliance with the standard and, at the same time, to prepare the company for the final audit.
9. **Corrective actions:** The company shall correct all deficiencies explained in the internal audit.
10. **Final certification audit:** Once this audit has been carried out in compliance with all requirements, the company will receive the ISO 9001 certificate.

#### **2.3.4. Hazard Analysis and Critical Control Point (HACCP)**

The concept of this system arose in 1960 when the Aeronautics and Space Administration and the U.S. Army formed a plan to reduce food that was somehow harmful to health in order to prevent astronauts from getting sick and to generate safety while the food was being tested. Years later, in 1993, the Codex Alimentarius Commission approved the principles of the HACCP system. (Pan American Health Organization, 2019).

The HACCP system distinguishes the problems linked to any production area by determining the cause of the problem in order to establish improvement techniques. On the other hand, HACCP is not like the other certificates mentioned above. This system is not used in a general way in the company. (Regional International Organization for Animal and Plant Health, 2016). Rather, each product must be treated individually in order to acquire HACCP certification.

#### 2.3.4.1. Process for the application of the HACCP system

The 10 steps for the application of the HACCP system are: first, make a HACCP team; second, explain the product; third, detail the use of the product and type of consumer; fourth, make a flow diagram; fifth, validate the flow diagram; sixth, investigate the hazards; seventh, define the critical control points; eighth, define the critical limits; ninth, set up a monitoring system; tenth, set problem-solving measures; eleventh, adapt the process for verification; and finally, apply a documentation system. (Paz & Gómez, 2015).

1. ***Make a HACCP team:*** it is necessary to establish a group so that the company knows about all its products and works correctly with a HACCP plan at the time of manufacturing.
2. ***Explanation of the product:*** the product should be thoroughly detailed, including information on its quality.
3. ***Specification of the use of the product and type of consumer:*** the customer and the use that he/she will give to each product must be established.
4. ***Make a flowchart:*** the team created at the beginning should make a flowchart explaining all the processes through which a fixed product passes.
5. ***Validation of the flowchart:*** the flowchart must be accepted by persons qualified to carry out the evaluation of the flowchart.
6. ***Hazard investigation:*** here the group created at the beginning will also work on an investigation of the possible risks in production and their consequences.
7. ***Define critical control points:*** Critical Control Points (CCP) should be established in each area where there is risk. Likewise, a CCP can be used in several areas where there is risk.
8. ***Define the critical limits:*** after having already established the CCPs, it is necessary to set one or more limits for each one in order to control the activities.
9. ***Implementation of a surveillance system:*** each area of the production process should be carefully monitored to detect any risk and remedy it.
10. ***Set problem-solving measures:*** decisions must be made to solve problems, including the option of discarding the defective product and documenting such cases in the system.
11. ***Adaptation of the process for verification:*** evaluations must be carried out to verify that the HACCP process has worked.

12. ***Application of the documentation system:*** in order to have the system, all the files of the stages, written above, of the same system must be registered (INEN, 2013).

Simply put, ISO 22000 and ISO 9001 are standards which are issued by the same organization and have the same 10 key sections that companies must follow. These sections are: scope, normative references, terms and definitions, organizational context, leadership, planning, support, operation, performance evaluation and improvement. However, different points are required in each, as ISO 22000 is based on the food safety management system and ISO 9001 is based on the quality management system. While ISO 9001 is the basis of all systems and focuses on product quality, ISO 22000 focuses on all areas of the supply chain. On the other hand, it was investigated that Good Manufacturing Practices focus on guaranteeing that the activities carried out within the company are adequate to obtain a safe product. For its implementation, it is necessary to carry out activities such as monitoring the ARCSA, requesting a register and communicating with the ARCSA. Finally, it was determined that HACCP is based on the analysis of critical points and problems within any area of the company to obtain a solution to them. It should be noted that all these management systems require documentation when certifying a company.



## CHAPTER 3: SELECTION AND PROPOSAL OF THE CERTIFICATION MODEL

### 3. SELECTION OF THE STANDARD

Since there are several standards, we will try to choose the best standard according to the needs and objectives of the company. For this purpose, a qualification table has been proposed based on the company's key factors to obtain the certification of any standard. The criteria on which the qualification and selection of the standard is based were determined through interviews with the company's manager.

Table 6:

*Compliance with the Standards according to key factors.*

<b>Standard</b>	<b>International Certificate</b>	<b>Integral</b>	<b>Consider the processes and structures of the company.</b>	<b>FSMS Standard</b>	<b>Standard that can be combined with other standards</b>	<b>Guarantees the safety of the food chain.</b>	<b>Effective communication with stakeholders</b>	<b>Product planning and implementation assurance</b>	<b>Access to new markets</b>
<b>ISO 22000</b>	×	×	×	×	×	×	×	×	×
<b>BPM</b>	×					×			×
<b>ISO 9001</b>	×	×	×		×		×	×	×
<b>HACCP</b>	×				×	×			×

The qualification was based on the definitions, explanations and scope of each standard previously investigated. Thus, ISO 2000 was the standard that meets the requirements mentioned by the company manager, which are: that it has international certification, that it is comprehensive and addresses the entire environment of the company, that it also examines the company's processes and structures, that it has a food safety management system, that it is a standard that can be combined with others, that it ensures the food chain, that it addresses the issue of stakeholders, that it ensures product planning and implementation, and that it provides access to new markets.

### 3.1. Requirements of ISO 22000:2018 at Piggis Company

ISO 22000 has been the standard that has met most of Piggis' requirements and needs. For this reason, we will continue with an evaluation of the company in order to observe and establish whether it meets, does not meet, or partially meets the requirements of the chosen standard. Also, the sections of each requirement and observations made at the time of the evaluation will be detailed.

This table details which requirements, from the Organizational Context section of ISO 22000, the company meets, does not meet or partially meets and its observations.

Table 7:

*ISO 22000:2018 requirements section 4. Organizational context.*

Section	ISO 22000:2018 Standard Requirements	Complies	Does not comply	Partially	Evidence / Observations
4.1	Conduct an internal and external analysis of the company, identifying hazards and opportunities (SWOT, CPM or PESTEL).	×			The company has conducted a SWOT analysis as part of its strategic plan process.

4.1	The analysis should be performed continuously.	×			The company does the analysis every 5 years.
4.2	Stakeholders that have a positive or negative impact on the FSMS should be established.			×	The company does perform supplier analyses and evaluations; however, this is not documented.
4.2	The needs and expectations of each stakeholder for the product or service must be stated.			×	The company analyzes and meets the client's expectations, but the documentation is not done. The company only supervises and provides feedback to salespeople and area supervisors, but does not conduct market research.
4.2	All parties should be distinguished and investigated as to how they might impact the achievement of the FSMS objective.			×	The company evaluates internally the characteristics of each supplier and the parts, for example: quality is done with sampling, but they have documentation and documentation.
4.3	Perform scope documentation (place of work, products, storage, type of packaging, interested parties, etc.).			×	The company has scope documentation, but does not document stakeholder information.
4.4	All processes and their related activities must be fixed and evaluated in order to have answers.	×			The company does comply with this requirement since it has documentation and graphics detailing both its production process and the company's process map explaining its activities.

This shows which requirements, from the Leadership section of ISO 22000, the company meets, does not meet or partially meets and its observations.

Table 8: ISO 22000:2018 requirements section 5. Leadership.

Section	ISO 22000:2018 requirements	Complies (C)	Not Compliant (NC)	Partially (P)	Evidence / Observations
5.	Leadership and accountability for FSMS must be shown through management.			×	The company shows leadership and documents it, but does not document everything required by management to ensure the FSMS.
5.	The food safety policy must be established.		×		The company has not implemented the ISO 22000 Standard; therefore, it does not comply with the requirement to establish a food safety policy.
5.	There must be objectives that prove that food safety is guaranteed.	×			The company does have objectives set out in the strategic plan, and by complying with the GMP standard, it also complies with objectives that guarantee food safety.
5.	The implementation of ESMS requirements in the commercial area of the company must be ensured.			×	The company does have requirements at the time of purchasing a product or having suppliers, however; it does not have them established by means of documentation or in writing.

The following table explains which requirements, from the Planning section of ISO 22000, the company complies with, does not comply with or partially complies with and its observations.

Table 9: ISO 22000:2018 requirements section 6. Planning.

Section	ISO 22000:2018 requirements	Complies (C)	Not Compliant (NC)	Partially (P)	Evidence / Observations
6.	An action plan must be drawn up (activities to be carried out, resources required, person responsible, date of implementation, measures to control results).		×		The company does not carry out an action plan.
6.	The company's objectives related to food safety (SMART) should be determined.			×	The company has established its objectives related to food safety, but it has not established them in depth or by means of SMART.
6.	There must be a good working environment.	×			The company does comply with this requirement. By means of psychosocial examinations, the company ensures the behavior of its employees and avoids having personnel that cause a bad work environment.

This table details which requirements, from the ISO 22000 Support section, the company complies, does not comply or partially complies with and its observations.

Table 10:

ISO 22000:2018 requirements section 7. Support.

<b>Section</b>	<b>ISO 22000:2018 requirements</b>	<b>Complie s (C)</b>	<b>Not Complia nt (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
7.	All areas must be analyzed and their needs met in order to have an effective production process.	×			The company does comply with this requirement.
7.	Personnel must be shown to be qualified.	×			The company has the requirement through induction and training programs for personnel and if they document it.
7.	Adequate products or raw materials must be sourced.	×			If it complies with this requirement since the company performs a criteria survey and documents it.
7.	Establish the support you have such as: resources, communication, competence.	×			The company has established the support it has and has it documented in the process map.
7.	Training should be conducted, given by the employees. And there must be evidence of the same and a performance control.	×			The company does have internal training given by employees and has documented it.
7.	To have an efficient communication system with customers, suppliers and employees.			×	The company does have communication. The company has established how they are going to communicate with customers or suppliers; however, they do not have it documented.

The following table explains which requirements, from the Operation section of ISO 22000, the company complies with, does not comply with or partially complies with and its observations.

Table 11: ISO 22000:2018 requirements section 8. Operation.

<b>Section</b>	<b>ISO 22000:2018 Standard Requirements</b>	<b>Complies (C)</b>	<b>Not Compliant (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
8.	It must have a risk control plan.	×			The company has a documented risk control plan.
8.	You must implement a monitoring system to find errors.	×			The company does have, and documents, a monitoring system for each process and product demonstrating the parameters.
8.	If there are products that do not comply with the critical limits, they must be discarded and documented.	×			The company does perform this requirement and documents it.

The following table shows which requirements, from the Performance Assessment section of ISO 22000, the company meets, does not meet or partially meets and its observations.

Table 12: ISO 22000:2018 requirements section 9. Performance Evaluation.

<b>Section</b>	<b>ISO 22000:2018 requirements</b>	<b>Complies (C)</b>	<b>Not Compliant (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
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9.	Internal audits should be conducted at least once a year.			×	The company performs audits through verification and review, but does not have documentation of the audits performed.
9.	Management should perform evaluation controls and document the evaluation information.			×	The company performs controls, but has not documented the results of the controls performed.
9.	The company's activities must be monitored and improved.			×	The company is in constant control and improvement of its processes, but they do not have documented all the controls and activities that are carried out to improve the different areas.

The following table explains which requirements, from the Improvement section of ISO 22000, the company meets, does not meet or partially meets and its observations.

Table 13:

*ISO 22000:2018 requirements section 10. improvement.*

<b>Section</b>	<b>ISO 22000:2018 requirements</b>	<b>Complies (C)</b>	<b>Not Compliant (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
10.	Problems must be solved, including measures to avoid environmental impacts.	×			The company does have documentation of problem solving, mainly in the area of environmental assurance.
10.	Conduct an evaluation of the nonconformity.	×			By complying with the GMP standard, the company does comply with this



					requirement and documents it. Therefore, it would also comply with this one.
10.	Establish the causes of the nonconformity.	×			By complying with the GMP standard, the company does comply with this requirement to determine the root cause and document it. Therefore, it would also comply with this one.
10.	Examine whether improvement measures have been implemented.	×			By complying with the GMP standard, the company does comply with this requirement and documents it. Therefore, it would also comply with this one.
10.	The company must ensure that the system is constantly updated.			×	The company does not comply with the ISO 22000 standard, but it does comply with the GMP standard, which ensures that the system is constantly updated.

The Piggis company complies with the vast majority of aspects, the vast majority of sections 7, 8 and 10, among them it stands out that: it has an internal and external analysis of the same, has a good working environment, performs an analysis of the areas and meets the needs to have an effective production process, is supplied with adequate raw material through evaluations, has established support, conducts training, has a risk control plan and a monitoring system, solves environmental impact problems, performs the evaluation of nonconformity detailing its causes and examines whether improvement measures have been implemented.

However, the company partially complies with the other requirements of ISO 22000, mostly in sections 4 and 9. The majority of the requirements that the company partially complies with are requirements that the company does comply with, but it does not comply with them in the manner required by the standard. In other words, the company does not have records or documentation of certain processes, audits or

analyzes it performs. For example, the company does perform internal audits, through verification and review, but does not have documentation of the audits performed.

On the other hand, the company does not comply with the standard, but only in one requirement that is not fulfilled at all. The company does not have an action plan detailing the activities to be carried out, the resources required, the person responsible, the date of implementation and the measures to control results.

### 3.2. ISO 9001:2015 requirements at Piggis Company

Although this degree work is focused on the search for a food certification standard, having chosen ISO 22000 as the standard, it is highly recommended to first work on the basis of ISO 9001 in order to facilitate the ISO 22000 implementation process. Thus, it has been decided to carry out an analysis of the factors required by ISO 9001 to see which requirements the company complies with and which requirements the company must implement to comply with it.

The following table explains which requirements, from the Organizational Context section of ISO 9001, the company meets, does not meet or partially meets and its observations.

Table 14:

*ISO 9001:2015 requirements section 4. Organizational context.*

Section	ISO 9001:2015 Standard Requirements	Complies	Not Compliant	Partially (P)	Evidence / Observations
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		(C)	(NC)		
4.	Perform an analysis of the internal and external context of the company, through SWOT or PESTEL analysis.	×			The company has conducted a SWOT analysis as part of its strategic plan process.
4.	Determine the stakeholders (shareholders, owners, regulators, customers, employees and competitors), their needs and expectations.			×	The company complies, in part, because the company does determine which are the stakeholders, needs and expectations, but does not make a record of this.
4.	The scope of the management system should be determined and documented.			×	The company has scope documentation, but does not document all the required information. This information is from stakeholders.

This shows which requirements, from the Leadership section of ISO 9001, the company meets, does not meet or partially meets and its observations.

Table 15: *ISO 9001:2015 requirements section 5. Leadership.*

Section	ISO 9001:2015 Standard Requirements	Complie s (C)	Not Complia nt (NC)	Partially (P)	Evidence / Observations
5.	Leadership must be shown through the highest level, management.	×			In the company, he does show leadership through management and documents it.
5.	Management should ensure that quality objectives are in line with the company's strategic focus.	×			The company's management does comply and its main objective is to have good quality products and good manufacturing practices.

5.	Management must provide the company with good resources to meet its objectives.	×			Management does comply, as it is constantly seeking to improve and update itself on a daily basis in areas such as infrastructure investment, machinery, etc.
5.	The management should inform the personnel about the importance of the system and make them contribute in a better way to the Quality Management System (QMS).	×			In the company, the management always trains its employees, through lectures or courses, on the importance and fulfillment of quality in the company.
5.	Management must have commitment and leadership with customer focus.			×	The company partially meets this requirement because, within the company, there is a sales and marketing area that focuses on the customer. Although these are linked to management, management as such does not focus precisely on the customer.
5.	A quality policy must be established to support the fulfillment of the objectives set out above. This must be documented.			×	The company partially complies with this since it has a product quality policy as such, but this policy does not cover the company as a whole. Also, the company does not have complete documentation of the policy.
5.	Quality activities should be part of the daily activities of the company's personnel.	×			All personnel, from the first day they join the company, undergo an induction period. This is a training for the personnel so that they know all the guidelines they must comply with in terms of hygiene, food and industrial safety standards to ensure the safety of the product. Likewise, the personnel must learn about each stage of the process according to certain quality criteria that have been developed internally by the plant and are in line with the regulations.

5.	The person in charge of quality must have the permission to manage the system and make continuous improvements according to what the company's management establishes.	×			Yes, it does, since management delegates a person to modify or coordinate everything that corresponds.
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The following table explains which requirements, from the Planning section of ISO 9001, the company meets, does not meet or partially meets and its observations.

Table 16:

*ISO 9001:2015 requirements section 6. Planning.*

Section	ISO 9001:2015 Standard Requirements	Complies (C)	Not Compliant (NC)	Partially (P)	Evidence / Observations
6.	Company objectives must be assessed, aligned with the quality policy, important for product or service conformity and documented.			×	The company does have a focus on meeting good quality in its products and production processes, however; they do not have adequate documentation of the same.
6.	Quality objectives should be reported, meet customer requirements, be updated and documented.			×	The company's objectives are informed and focused on customer needs. They are also updated as customer needs change. However, this is not documented.
6.	The action plan should include: what will be done, what resources will be needed, the person responsible for the actions, the date			×	The company does carry out an action plan only when a nonconformity is detected, but the company does not manage on a day-to-day basis in this way.

	on which the actions will be implemented and how the results will be evaluated.				
6.3	Any changes to the QMS to be made by the company should be planned.		×		At the time of making changes, the company does not detail the planning of the changes to be made.

This table details which requirements, from the Support section of ISO 9001, the company complies, does not comply or partially complies with and its observations.

Table 17:

*ISO 9001:2015 requirements section 7. Support.*

<b>Section</b>	<b>ISO 9001:2015 Standard Requirements</b>	<b>Complies (C)</b>	<b>Not Compliant (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
7.	When planning the quality objectives, the company must take into account the current resources and the resources needed from external suppliers.	×			The company does take into account the quality of the product since it chooses its best suppliers when ordering raw materials or resources for the production of its product. For example, the company imports most of its raw materials because the quality is much better in other places.
7.	The company must have suitable people with the necessary skills for each job position.	×			The company has the requirement through induction and training programs for personnel and if they document it.

7.	The facilities, hardware, software, transportation, storage and technology necessary to conduct business operations must be established, provided and maintained.	×			Piggis does have adequate system, refrigerated transport and infrastructure facilities.
7.	The company must provide a good environment and appropriate atmosphere in any workspace (Environment: employee assessment, stress reduction, clear reporting lines, etc.) (Atmosphere: light, temperature, airflow, hygiene, noise levels, etc.)	×			The company does evaluate and train employees. The company also performs environmental and noise controls, which are required by the GMP standard.
7.	The company must ensure that all monitoring and measuring equipment is correct and maintained for the activities. This process should be documented.			×	The company does track products. They do document it but do not record it in an adequate way.
7.	The company should have a record of project plans, product development, customer feedback and testing so that this information can be reported and internal knowledge can be shared.			×	The company does perform these activities, but does not have documentation of the plans for each project, product, customer comments and evidence of the same.
7.	The company must have documentation of training, expiration date and refresher plans.		×		The company does not record this data.
7.	The information of the person/employee and his/her activities to be performed in the company must be detailed.			×	The company does perform a survey of employee positions. However, it does not survey all employees, but only the heads of each area. They do not have detailed information on the workers.

7.	The company should have documented competency assessments and evidence of training.	×			The company has documented that after each training session, each employee signs and records their attendance.
7.	The company must adjust its communication with its audience to ensure that information reaches everyone.			×	The company does inform through each departmental head about any change or update. However, there are issues such as the launch of a product in which only the commercial area is informed.
7.	The company must establish the person who will be in charge of the general communication (website and general marketing) of the company.	×			The company does have a marketing manager who is in charge of general communication.
7.	The company must establish the person who will be in charge of the specific communication (customer liaison, customer needs and product specification).			×	The company does not have a person in charge of specific communication.
7.	The company must establish the person who will be in charge of incoming communication (customer inquiries, legislative updates and complaints).			×	The company does not have a fixed person in charge of incoming communication.

The following table shows which requirements, from the Operation section of ISO 9001, the company meets, does not meet or partially meets and its observations.



Table 18:

ISO 9001:2015 requirements section 8. Operation.

Section	ISO 9001:2015 Standard Requirements	Complie s (C)	Not Complia nt (NC)	Partially (P)	Evidence / Observations
8.	The requirements for the product must be determined and understood.	×			The company does have this through requirements and parameters that must be met, such as microbiological, physical-chemical, sensory, etc.
8.	Before committing to anything, the company must establish and assess its own ability to meet the obligations.	×			The company, at the moment of doing business, always makes an analysis of the quantity of its products, sales and imports of raw materials in order to offer the customer something it can deliver.
8.	If changes are to be made to the agreed product, there must be proper authorization and documentation and communication to the parties (suppliers or partners).			×	At the time of making changes, the company does communicate with its own vendors and customers, but does not have any documentation.
8.	The company should consider the following aspects when designing the product: process steps, reviews, approvals, approvals, expected life cycle, post-delivery service and how it will review the effectiveness of the product. It must be documented	×			The company does comply with this requirement since it follows a procedure to obtain the registration of the product where its formula is developed and elaborated and its procedure is defined. The shelf life and presentation of the product are also defined. All this is done in laboratories and is always documented.

8.	The company should document all information on control activities for product design and development.	×			The company has documentation of the required information.
8.	The company should have documentation of controls, traceability measurement and acceptance criteria.	×			The company does comply with this requirement.
8.	The impact that suppliers' actions may have on the company must be identified.		×		The company does not have a supplier survey.
8.	Controls should be established to reduce potential risks on the part of suppliers.	×			The company has criteria from the moment the supplier enters with the vehicle, it must comply with protective equipment, comply with the cold chain, etc.
8.	The company must make a process map to ensure the importance that the company gives to customers and applicable requirements.	×			The company does have a process map, which is done every 2-3 years.
8.	If a problem occurs, the company must identify it and prevent it from affecting the customer.	×			When there is a problem with a product in the plant, the problem is determined and solved at that moment.
8.	The company should document information on nonconformities.	×			The company does have the non-conformities from the audits.

Here you can see which requirements, from the Performance Assessment section of ISO 9001, the company meets, does not meet or partially meets and its observations

Table 19:

*ISO 9001:2015 requirements section 9. Performance Evaluation.*

<b>Section</b>	<b>ISO 9001:2015 Standard Requirements</b>	<b>Complies (C)</b>	<b>Not Compliant (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
9.	It should be established which areas should be monitored in order for the company to ensure that the processes are working as required.	×			There are controls in all process areas. There are control points and critical control points where measuring equipment is used and documented by means of records.
9.	The consistency in which it will be monitored, the resources required and the way in which the results will be recorded and evaluated must be established.	×			The company does comply with this requirement.
9.	Customer feedback on expectations and needs should be recorded.			×	The company does take customer concerns into account through salespeople, but it is not documented. On a few occasions it is recorded by means of an e-mail.
9.	Internal audits should be conducted.	×			The company does conduct internal audits.
9.	If there is a problem in any process, corrective actions should be implemented as soon as possible.	×			The company does comply with this requirement.

9.	The company's management should conduct a review from time to time and should document them in the form of meeting minutes.			×	The company performs controls, but has not documented the results of the controls performed.
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This table explains which requirements, from the Improvement section of ISO 9001, the company meets, does not meet or partially meets and its observations.

Table 20:

*ISO 9001:2015 requirements section 10. improvement.*

<b>Section</b>	<b>ISO 9001:2015 Standard Requirements</b>	<b>Complie s (C)</b>	<b>Not Complia nt (NC)</b>	<b>Partially (P)</b>	<b>Evidence / Observations</b>
10.	A complete record of any nonconformity should be kept.	×			The company does have a record of nonconformity.
10.	Improvements should be implemented to enhance customer satisfaction.	×			Day by day the company is improving and changing.
10.	A root cause analysis should be performed in relation to the problem that exists in the company.			×	The company does perform a root-cause analysis for nonconformities, but does not perform a root-cause analysis for those that arise on a day-to-day basis.

According to the ISO 9001 requirements table, Piggis complies with several of the requirements of this standard compared to the previously evaluated standard. Likewise, several requirements of this standard are met because the company is GMP certified. Therefore, it has already implemented some processes, controls and documentation.

In section 4, the company meets only 1 of 3 requirements which is internal and external analysis. Then, in section 5, the company complies with most of the requirements, which are based on leadership. On the other hand, in section 6, most of the requirements, based on planning, the company partially complies because they are not documented. On the other hand, in section 7, which focuses on support, compliance with the requirements varies between complies, does not comply and partially complies because it does not have people in charge of the different communications and does not document the information adequately. On the other hand, in section 8, the company largely complies with operational requirements such as controls. Similarly, in section 9, the company complies with the requirements of the standard for the most part, with the exception of one requirement which does not document information on each employee's position. Finally, in section 10, the company complies with 2 of 3 requirements based on improvement.

### **3.3. ISO 9001:2015 Standard Action Plan for Piggis Company**

According to the analysis of the requirements that the company does not meet or partially meets, action plans will be made for each one of them, specifying: the section of the ISO 9001 standard, the missing requirements that the company must meet, the activity that the company must carry out to meet the requirements, the necessary resources, the deadline to do so and the person responsible.

The following table explains the action plan, from section 4 of ISO 9001, that the company is proposed to make to determine the stakeholders and the scope of the system.

Table 21:

*Action plan for identified caveats from ISO 9001, section 4.*

<b>ISO 9001 Standard Requirements</b>	<b>Action Plan</b>				<b>Remarks</b>
4. Determine the stakeholders (shareholders, owners, regulators, customers, employees and competitors), their needs and expectations.  <b>Status:</b> Partial	A meeting should be held in the company with some people in charge of certain areas to assign to each one the different stakeholders. For example: the management will be in charge of the shareholders and owners, the head of human resources will be in charge of the employees and the head of sales will be in charge of the customers. After each area is assigned its stakeholder to study, the people in charge of this must analyze and detail the needs and expectations of each one by means of an Excel document specifying the above mentioned.				
	<b>Resources</b>				
	<b>Economic</b>	<b>Technological</b>	<b>Human</b>	<b>Deadline</b>	
	\$10	Computer	Management, human resources manager and sales manager.	2 months	

	<b>Responsible and verification:</b> the responsible will be the general manager and will be verified by means of the Excel document to be made.				
<p>4. The scope of the management system should be determined and documented.</p> <p><b>Status:</b> Partial</p>	<p>The company must have a meeting with the manager, plant manager, logistics manager, marketing area and administrative manager in which the following aspects will be discussed: the products to be offered, the processes required to obtain the final product and limitations. In order to obtain the scope and to be able to document, in Word, all the information of the same.</p> <p>Detailing,</p> <ul style="list-style-type: none"> <li>● Products: sausages</li> <li>● Activities: design, manufacturing, distribution, marketing and support.</li> </ul> <p>Locations: the location of the certified company.</p>			<p>After each person has presented and explained their work at the meeting, the next step is to gather the records and determine the scope.</p> <p>Detailed documents should be accurate and not lengthy.</p>	
	<b>Resources</b>				
	<b>Economic</b>	<b>Technological</b>	<b>Human</b>		<b>Deadline</b>
	\$16	Computer	Manager, plant manager, logistics manager, marketing manager and administrative manager.		3 weeks

	<b>Responsible and verification:</b> the person responsible is the General Manager and must be verified at the meeting to be held on the last two days of the term for each person to explain their work performed.	
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This table explains the action plan, from section 5 of ISO 9001, that the company is recommended to follow to demonstrate leadership and determine the quality policy.

Table 22:

*Action plan for identified caveats from ISO 9001, section 5.*

<b>ISO 9001 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
5. Management should have commitment and leadership with customer focus.  <b>Status:</b> Partial	The general manager of the company must demonstrate commitment and leadership by showing that certain requirements of the Standard have been met. This will require the assistance of several people and can be demonstrated by evidence such as:  1. Quality Policy: in a small meeting, the importance and objectives of the company must be defined, in addition to selling and making money.  2. Management System Check: the general manager should meet with the person in charge of quality and system follow-up to discuss	The Management System check is carried out when the QMS is implemented for the first time.  To demonstrate commitment and leadership it is necessary to comply with certain requirements of the standard and document them. In this requirement it is necessary to gather



	<p>important issues such as results, changes, needs, etc. And this meeting should be documented by means of meeting minutes detailing the date, the names of the people who attended and all the topics discussed at the meeting.</p> <p>3. Personnel and Machinery: In the personnel area, the head of human resources must make a description of the jobs in the company by means of an organization chart and also by means of a table specifying: the name of the job, the area where it is located, the position above and below it, the process of the tasks to be performed and the education and skills required for the position. On the other hand, on the subject of machinery, the head of the maintenance area must be in charge of documenting his work in maintenance sheets. Here, the date, the manner in which maintenance was performed and the equipment to which it was performed are detailed.</p> <p>4. Continuous improvement: to demonstrate this, it is necessary to carry out a study of the processes by means of a flow diagram of absolutely all the processes to analyze them and identify failures in the same and make changes to obtain efficiency in the same.</p>	<p>documents and records of what has been done to demonstrate commitment and leadership.</p> <p>Machine maintenance and personnel data can be documented in software.</p>
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	<p>5. Customer focus: management should explain how the company seeks to meet and satisfy customer needs and expectations. For example, implementing new products</p> <table border="1" data-bbox="568 395 1514 624"> <tr> <th colspan="4" data-bbox="568 395 1514 451"><b>Resources</b></th> </tr> <tr> <th data-bbox="568 451 757 564"><b>Economic</b></th> <th data-bbox="757 451 965 564"><b>Technologica l</b></th> <th data-bbox="965 451 1326 564"><b>Human</b></th> <th data-bbox="1326 451 1514 564"><b>Deadline</b></th> </tr> <tr> <td data-bbox="568 564 757 624">\$40</td> <td data-bbox="757 564 965 624">Computer</td> <td data-bbox="965 564 1326 624">Manager</td> <td data-bbox="1326 564 1514 624">1 week</td> </tr> </table> <p><b>Responsible and verification:</b> the responsible is the general manager and it is verified through the records that must be made in each process.</p>	<b>Resources</b>				<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	\$40	Computer	Manager	1 week	
<b>Resources</b>														
<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>											
\$40	Computer	Manager	1 week											
<p>5. A quality policy should be established to support the fulfillment of the objectives set out above. This should be documented.</p> <p><b>Status:</b> Partial</p>	<p>A company meeting should be held in which the management answers the following questions to set the quality policy:</p> <p>What do they seek to achieve?</p> <p>What can impede the achievement of the objectives?</p> <p>How will you manage these problems?</p> <p>How can risks become opportunities?</p> <p>How can opportunities help to improve?</p> <p>Who will be responsible for the actions?</p> <p>When will you need to implement actions?</p> <p>When will it be known if the actions were effective?</p> <table border="1" data-bbox="568 1289 1514 1348"> <tr> <th colspan="4" data-bbox="568 1289 1514 1348"><b>Resources</b></th> </tr> </table>	<b>Resources</b>				<p>The meetings should be held two days a week in order to analyze and respond to the questions required to obtain the quality policy.</p> <p>It is necessary to take note of each opinion and response in order to have a document.</p>								
<b>Resources</b>														

	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	
	\$10	Computer	Management	1 month	
	<b>Responsible and verification:</b> the responsible is the general manager and it is verified through the attendance of meetings and the analysis document to set the policy.				

The following is the action plan, from section 6 of ISO 9001, which is recommended to the company to determine the objectives, its action plans and any changes to be made.

Table 23:

*Action plan for identified caveats from ISO 9001, section 6.*

<b>ISO 9001 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
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<p>6. The company's objectives should be assessed, aligned with the quality policy, informed, focused on customer requirements, updated and documented.</p>	<p>The objectives must be determined, according to the quality and the customer's need, in its products and production processes. Then, they should be informed to all employees and updated according to the change of the customer's requirements. Finally, the objectives and the communication process with the employees must be detailed and documented.</p>			<p>New quality objectives must be implemented each year.</p>
<p><b>Status:</b> Partial</p>	<p>To implement them, the following must be done:</p> <ul style="list-style-type: none"> <li>• Hold a meeting in the company where the quality policy established in the company is analyzed and according to it, the objective of the quality policy can be detailed in order to set the quality objectives of the company.</li> <li>• It should be taken into account that the objective must be clear, specific and real at the time of proposing it in order to achieve it.</li> <li>• The quality objective should be communicated to the company so that employees are aware of it and focus on the changes needed to meet the proposed quality objective.</li> </ul>			
<p><b>Resources</b></p>				
<p><b>Economic</b></p>	<p><b>Technological</b></p>	<p><b>Human</b></p>	<p><b>Deadline</b></p>	
<p>\$20</p>	<p>Computer</p>	<p>General manager and management.</p>	<p>1 week</p>	

	<b>Responsible and verification:</b> the general manager is responsible and is verified by recording the analysis carried out to determine the quality objectives.				
<p>6. The action plan should include: what will be done, what resources will be needed, the person responsible for the actions, the date on which the actions will be implemented and how the results will be evaluated.</p> <p><b>Status:</b> Partial</p>	<p>Depending on the quality objectives established, the company manager must assign certain people to be in charge of carrying out an action plan for the different objectives.</p> <p>After assigning each objective to each person in the company, the manager should bring them together to explain the proper way to carry out and document the action plan to be made. Explaining that, the following should be attached to the document: what will be done, what resources will be needed, the person responsible for the actions, the day on which the actions will be implemented and how the results will be evaluated.</p>				<p>The objective assigned to the employee must be related to the work performed by the person in the company. That is, from the same area.</p>
	<b>Resources</b>				
	<b>Economic</b>	<b>Technological</b>	<b>Human</b>	<b>Deadline</b>	
	\$60	Computer	General manager, management, plant manager, quality manager and marketing manager.	1 month	

	<p><b>Responsible and verification:</b> the person responsible is the general manager and it is verified by the presentation of the different action plans made by each person in charge of carrying it out.</p>				<p>This is presented in the action plan explained in the previous requirement.</p>
<p>6.3. Any changes to the QMS to be made by the company shall be planned.</p> <p><b>Status:</b> Not Compliant</p>	<p>Those in charge of making the action plan of the quality objectives must take into account that there is a probability of a modification. For this reason, the following should be detailed in the action plan: the scope of the changes that are deemed necessary, the potential impact on the existing system, the way in which the changes will be used and the effects this may have on current roles, responsibilities and authorities.</p>				
<p><b>Resources</b></p>					
<p><b>Economic</b></p>	<p><b>Technological</b></p>	<p><b>Human</b></p>	<p><b>Deadline</b></p>		
<p>\$20</p>	<p>Computer</p>	<p>Plant manager, quality manager and marketing manager.</p>	<p>2 weeks</p>		
<p><b>Responsible and verification:</b> the person responsible is the general manager and it is verified by the presentation of the different action plans made by each person in charge of carrying it out.</p>					

The following table is the one with the largest number of action plans. For this reason, it explains the action plan, from section 7 of ISO 9001, which recommends the company to have a monitoring and measurement control, have a good record of project plans, product development, customer feedback and testing, record the information of all employees and have good communication.

Table 24:

*Action plan for identified ISO 9001, section 7 caveats.*

ISO 9001 Standard Requirements	Action Plan				Remarks
7. The company should ensure that all monitoring and measuring equipment is correct and maintained for the activities. This process should be documented.  <b>Status:</b> Partial	The company must carry out daily controls of the products through monitoring and measurement. For example: measure with a thermometer the temperature of the products according to their production process or keep the refrigerators at the right temperature.  For this, thermometers should be implemented in specific areas of the plant.  In order to document this, a sheet should be filled out detailing: the type of product, product temperature, date, production process, observations and the signature of the person who performed the activity.				
	Resources				
	Economic	Technologica l	Human	Deadline	

	\$700	Thermometers	Workers on shift inside the control area.	1 week	
	<b>Responsible and verification:</b> the person responsible for this is the plant manager and it is verified by means of the cards filled out by the employees on duty to keep track.				
7. The company should have a record of project plans, product development, customer feedback and testing so that this information can be reported and internal knowledge can be shared.  <b>Status:</b> Partial	<p>A quality plan can be applied to a certain product, process or project. The company should make its quality plans based on the following aspects:</p> <ul style="list-style-type: none"> <li>• Project plan: the company must make a complete vision of the company, determine the scope and objectives, set positions and responsibilities, determine a time frame, budget and obtain approval of the project.</li> <li>• Product development: brainstorming using the SCAMPER method or a SWOT analysis, determining the target market and product characteristics, establishing a value proposition, having a marketing strategy, evaluating the prototype and having a list of required raw materials.</li> <li>• Customer comments: a tasting should be carried out with randomly selected customers to get their point of view.</li> </ul>			<p>All activities explained should be recorded in an orderly manner and evidence of the activities should be attached.</p> <p>The administrative head and management are in charge of the project plan.</p> <p>Those in charge of product development are the plant manager, purchasing manager, quality manager and management.</p> <p>The people in charge of customer feedback are the people within sales and marketing.</p>	
	<b>Resources</b>				



	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	
	\$100	Computer	Plant manager, quality manager, salespeople and marketing manager.	4-6 months	
	<b>Responsible and verification:</b> here there are several people responsible depending on the aspect; however, the person in charge of verifying that this is complied with is the general manager of the company. The general manager must verify compliance at the time of submitting the folders of the work performed.				
7. The information of the person/employee and his/her activities to be performed in the company must be detailed.	The human resources area must register in the company's system information on each employee, including: name, address, age, e-mail address, position or responsibility in the company and contract. At the moment of receiving a new employee, all these data must be recorded.				
<b>Status:</b> Partial	<b>Resources</b>				
	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	
	\$200	Computer	Human resources area	2 months	

	<p><b>Responsible and verification:</b> the person responsible for this work is the head of human resources and it is verified that the work is registered in the system.</p>				
<p>7. The company should adjust its communication with its audience to ensure that information reaches everyone.</p> <p><b>Status:</b> Partial</p>	<p>To improve communication within the company, it is necessary to have all the employees' e-mails registered in the system as mentioned above. In this way, to communicate by means of e-mails all kinds of information. And consequently, all workers can provide information to any supplier or customer who has questions.</p> <p>To document, a communications matrix should be created detailing: who, what, to whom and how information is communicated.</p>				
<b>Resources</b>					
<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>		<b>Deadline</b>	
\$25	Computer or cell phone	Secretary to the General Manager.		1 week	
<p><b>Responsible and verification:</b> the person responsible for keeping the information is the head of human resources, but the person who informs workers of all types of information is the general manager's secretary. This is verified through the receipt of the company's informative mails and the communications matrix.</p>					

<p>7. The company must fix the person who will be in charge of the specific communication (customer/customer liaison, customer needs and product specification).</p> <p><b>Status:</b> Not Compliant</p>	<p>The right person to be in charge of specific communication is the salesperson, as he/she is the one who deals directly with and informs customers about the products.</p>				
	<p><b>Resources</b></p>				
	<p><b>Economic</b></p>	<p><b>Technologica l</b></p>	<p><b>Human</b></p>	<p><b>Deadline</b></p>	
	<p>Not applicable</p>		<p>1 person</p>	<p>1 week</p>	
	<p><b>Responsible and verification:</b> the person in charge of the specific communication is the head of the marketing and communication area.</p>				

Here we detail the action plan, from section 8 of ISO 9001, which is proposed to the company to carry out at the time of generating changes in the product and to have an analysis of the impact that suppliers have on it.

Table 25:

*Action plan for identified caveats from ISO 9001, section 8.*

<b>ISO 9001 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
<p>8. If changes are to be made to the agreed product, there must be proper authorization and documentation and communication to the parties (suppliers or partners).</p> <p><b>Status:</b> Partial</p>	<p>When making changes to a product, you must first have a meeting with management, the plant manager and the quality manager. So that they can give their opinion about the change to be made in a certain product.</p> <p>Once the meeting is over and the changes have been agreed upon, the quality manager must send a letter to the company manager detailing the changes to be made, specifying the product and the advantages of this change.</p> <p>After having the authorization, the sales manager must send by mail to each salesperson of the company so that they communicate to the</p>	

	clients and partners the change, the cost and its benefits, as well as in the previously made document.			
<b>Resources</b>				
<b>Economic</b>	<b>Technologica l</b>		<b>Human</b>	<b>Deadline</b>
\$40	Computer		Management, the plant manager and the quality manager	1 week
<b>Responsible and verification:</b> The person responsible for obtaining authorization and documentation is the quality manager, and the person in charge of communicating changes is the sales manager and salespeople. The sales manager is responsible for supervising and verifying that changes are communicated by the salespeople.				
8. The impact of suppliers' actions on the company should be identified.  <b>Status:</b> Not Compliant	The purchasing and imports area must first make a list of qualities required in the company that the supplier must meet. And then with these qualities, the supplier analysis can be carried out.  In other words, an analysis must be carried out to identify the supplier's values, principles and ways of working in order to define the advantages and disadvantages that the company may have when working with a certain supplier.	All information should be detailed in a document in tabular format.		

	<b>Resources</b>			
	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>
	\$45	Computer	Purchasing and imports.	2 months
	<b>Responsible and verification:</b> the head of purchasing and imports is responsible for this and must verify that the analysis is carried out by reviewing the tables.			

This table explains the action plan, from section 9 of ISO 9001, that the company is recommended to follow in order to have the customer's opinion and perform the appropriate internal audit.

Table 26:

*Action plan for identified ISO 9001, section 9 caveats.*

<b>ISO 9001 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
9. Customer feedback on expectations and needs should be recorded.	The company must provide, twice a year, in the delicatessen, sheets on which customers can contribute with their product recommendations. After collecting the sheets with the recommendations, the evidence folder should be sent to the quality area for recording and analysis.	
	<b>Resources</b>	

<b>Status:</b> Partial	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	
	\$60	Computer	Delicatessen staff and quality area.	1 year	
	<b>Responsible and checking:</b> the quality manager is responsible and checks the work by receiving the recommendation sheets.				
9. Management should conduct a review from time to time and document them in the form of meeting minutes.  <b>Status:</b> Partial	The company must draw up a table of requirements that the company and its areas must comply with. So that, at the time that the management performs the review, they qualify it in a certain way and record their observations. Then, in another document, the conclusions of the control will be written in the form of minutes of meetings. Detailing, the people who performed the review, the requirements that the company needs to meet or improve and their signatures.  This general control must be carried out 4 times a year by the company.			If improvements need to be implemented, the company must carry out the control to review it within 2 months.	
<b>Resources</b>					
	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>	
	\$15	Computer	Management	1 year	

	<p><b>Responsible and verification:</b> The general manager is responsible and is verified by the records of the minutes of meetings and the qualified requirements tables.</p>	
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The following table explains the action plan, from section 10 of ISO 9001, which is proposed to the company to perform the root cause analysis and to document it.

Table 27:

*Action plan for identified ISO 9001, section 10 caveats.*

<p><b>ISO 9001 Standard Requirements</b></p>	<p><b>Action Plan</b></p>	<p><b>Remarks</b></p>
<p>10. A root cause analysis should be performed in relation to the problem that exists in the company.</p> <p><b>Status:</b> Partial</p>	<p>The quality area should make a table detailing the root cause analysis. First, describe the problem that the company has at that moment. Second, write down the causes that you think are generating this problem. Third, the possible causes should be established, specifying the category, such as the type of process, personnel employed, work area, etc. Fourth, analyze the cause and effect diagram and determine the main causes of the problem.</p> <p>Having already identified them, the company can solve the problem.</p>	<p>It is advisable to perform the analysis in a fishtail diagram.</p>



Once this analysis has been carried out, the diagram must be documented.			
<b>Resources</b>			
<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>
\$20	Computer	Quality area	1 week
<b>Responsible and verification:</b> the quality manager is responsible for this activity and verifies by reviewing the root cause diagram created.			

### 3.4. ISO 22000:2018 action plan for the Piggis company.

According to the analysis of the requirements that the company does not meet or partially meets, action plans will be made for each one of them, specifying: the section of the ISO 22000 standard, the missing requirements that the company must meet, the activity that the company must carry out to meet the requirements, the necessary resources, the deadline to do so and the person responsible.

The following is the action plan, from section 4 of ISO 22000, which is recommended to the company to determine its stakeholders and to have the scope.

Table 28:

*Action plan for identified caveats from ISO 22000, section 4.*

<p><b>ISO 22000 Standard Requirements</b></p>	<p><b>Action Plan</b></p>	<p><b>Remarks</b></p>
<p>4.2. Determine stakeholders (shareholders, owners, regulators, customers, employees and competitors), needs, expectations, potential impact on the ESMS and how these could impact the achievement of the ESMS objective.</p> <p><b>Status:</b> Partial</p>	<p>A meeting should be held in the company with some people in charge of certain areas to assign to each one the different stakeholders. For example: the management will be in charge of the shareholders and owners, the head of human resources will be in charge of the employees and the head of sales will be in charge of the customers. After each area is assigned its stakeholder to study, the people in charge of this must analyze and detail the needs and expectations of each one by means of an Excel document specifying the above mentioned.</p> <p>On the other hand, on the subject of possible impacts, the purchasing and imports area must first make a list of qualities required by the company that the supplier must meet. And then with these qualities, the supplier analysis can be carried out.</p> <p>In other words, an analysis must be carried out to identify the supplier's values, principles and ways of working in order to define the</p>	

	<p>advantages and disadvantages that the company may have when working with a certain supplier.</p> <table border="1"> <thead> <tr> <th colspan="4">Resources</th> </tr> <tr> <th>Economic</th> <th>Technologica l</th> <th>Human</th> <th>Deadline</th> </tr> </thead> <tbody> <tr> <td>\$10</td> <td>Computer</td> <td>Management, human resources manager and sales manager.</td> <td>4 months</td> </tr> </tbody> </table> <p><b>Responsible and verification:</b> the responsible for the stakeholder analysis will be the general manager and it will be verified by the Excel document to be made. On the other hand, the person responsible for the impact is the head of purchasing and imports and he must verify that the analysis is performed by reviewing the tables.</p>	Resources				Economic	Technologica l	Human	Deadline	\$10	Computer	Management, human resources manager and sales manager.	4 months	
Resources														
Economic	Technologica l	Human	Deadline											
\$10	Computer	Management, human resources manager and sales manager.	4 months											
4.3. Perform documentation of the scope (place of work, products, storage, type of packaging, interested parties, etc.).	<p>The company must have a meeting with the manager, plant manager, logistics manager, marketing area and administrative manager in which the following aspects will be discussed: the products to be offered, the processes required to obtain the final product and limitations. In order to obtain the scope and to be able to document, in Word, all the information of the same.</p> <p>Detailing,</p>	<p>After each person has presented and explained their work at the meeting, the next step is to gather the records and determine the scope.</p> <p>Detailed documents should be accurate and not lengthy.</p>												

<b>Status:</b> Partial	<ul style="list-style-type: none"> <li>• Products: sausages</li> <li>• Activities: design, manufacturing, distribution, marketing and support.</li> </ul> <p>Locations: the location of the certified company.</p>			
	<b>Resources</b>			
	<b>Economic</b>	<b>Technologica l</b>	<b>Human</b>	<b>Deadline</b>
	\$16	Computer	Manager, plant manager, logistics manager, marketing manager and administrative manager.	3 weeks
	<p><b>Responsible and verification:</b> the person responsible is the General Manager and must be verified at the meeting to be held on the last two days of the term for each person to explain their work performed.</p>			

The following table explains the action plan, from section 5 of ISO 22000, that the company is proposed to do to demonstrate leadership and determine a food safety policy.

Table 29:

*Action plan for identified caveats from ISO 22000, section 5.*

ISO 22000 Standard Requirements	Action Plan	Remarks
<p>5. Leadership and accountability for FSMS should be shown by management.</p> <p><b>Status:</b> Partial</p>	<p>The general manager of the company must demonstrate commitment and leadership by showing that certain requirements of the Standard have been met. This will require the assistance of several people and can be demonstrated by evidence such as:</p> <ol style="list-style-type: none"> <li>1. Quality Policy: in a small meeting, the importance and objectives of the company must be defined, in addition to selling and making money.</li> <li>2. Food Safety Management System Check-up: the general manager should meet with the person in charge of quality and monitoring of the system to discuss important issues such as results, changes, needs, etc. This meeting should be documented in the form of meeting minutes detailing the date, the names of the people who attended and all the topics discussed at the meeting.</li> <li>3. Personnel and Machinery: In the personnel area, the head of human resources must make a description of the jobs in the company by means of an organization chart and also by means of a</li> </ol>	<p>The Food Safety Management System check is performed when the FSMS is implemented for the first time.</p> <p>Machine maintenance and personnel data can be documented in software.</p>

table specifying: the name of the job, the area where it is located, the position above and below it, the process of the tasks to be performed and the education and skills required for the position. On the other hand, on the subject of machinery, the head of the maintenance area must be in charge of documenting his work in maintenance sheets. Here, the date, the manner in which maintenance was performed and the equipment to which it was performed are detailed.

- 4. Continuous improvement: to demonstrate this, it is necessary to carry out a study of the processes by means of a flow diagram of absolutely all the processes to analyze them and identify failures in the same and make changes to obtain efficiency in the same.

Customer focus: management should explain how the company seeks to meet and satisfy customer needs and expectations. For example, implementing new products

<b>Resources</b>			
<b>Economic</b>	<b>Technological</b>	<b>Human</b>	<b>Deadline</b>
\$40	Computers	Manager	1 week

	<p><b>Responsible and verification:</b> the general manager is responsible and it is verified by means of the records that must be made in each process.</p>		
<p>5. The food safety policy must be established.</p> <p><b>Status:</b> Not Compliant</p>	<p>A meeting should be held in the company in which the management discusses several points to set the food safety policy.</p> <ul style="list-style-type: none"> <li>● Continuous improvement actions</li> <li>● Setting objectives related to FSMS</li> <li>● Commitment to the system</li> <li>● Form of distribution of products for safe consumption</li> <li>● Product development form for safe consumption</li> </ul> <p>At the time of analysis, one person should be in charge of detailing each final opinion in a document.</p>		
<b>Resources</b>			
<b>Economic</b>	<b>Technological</b>	<b>Human</b>	<b>Deadline</b>
\$25	Computer	Management, logistics manager and plant manager.	3 weeks
	<p><b>Responsible and verification:</b> the responsible is the general manager and <b>it</b> is verified through the records that must be made in each process.</p>		





This table explains the action plan, from section 6 of ISO 22000, which is recommended for the company to follow in order to have action plans and objectives in accordance with the standard.

Table 30:

*Action plan for identified caveats from ISO 22000, section 6.*

<b>ISO 22000 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
<p>6. An action plan should be drawn up (activities to be carried out, resources needed, person responsible, date of implementation, measures to control results).</p> <p><b>Status:</b> Not Compliant</p>	<p>First, the company must identify the risks and opportunities in order to proceed with an action plan and meet the objectives.</p> <p>Depending on the objectives, the company manager must assign certain people to be in charge of carrying out an action plan according to the area of work.</p> <p>After assigning the work to each person in the company, the manager should bring them together to explain the proper way to carry out and document the action plan to be done. Explaining that, the following should be attached to the document: what will be done, what resources will be needed, the person responsible for the actions, the day on</p>	<p>The objective assigned to the employee must be related to the work performed by the person in the company. That is, from the same area.</p>

	<p>which the actions will be implemented and how the results will be evaluated.</p>									
	<b>Resources</b>									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Economic</th> <th style="width: 25%;">Technological</th> <th style="width: 40%;">Human</th> <th style="width: 10%;">Deadline</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">\$60</td> <td style="text-align: center;">Computer</td> <td>General manager, management, plant manager, quality manager and marketing manager.</td> <td style="text-align: center;">1 month</td> </tr> </tbody> </table>	Economic	Technological	Human	Deadline	\$60	Computer	General manager, management, plant manager, quality manager and marketing manager.	1 month	
Economic	Technological	Human	Deadline							
\$60	Computer	General manager, management, plant manager, quality manager and marketing manager.	1 month							
	<p><b>Responsible and verification:</b> the person responsible is the general manager and it is verified by the presentation of the different action plans made by each person in charge of carrying it out.</p>									
6. The company's objectives related to food safety (SMART) should be determined.	<p>The company should hold a meeting where the objectives are analyzed using the SMART method. This will help the company to set its objectives. Here, management will detail its objectives in a specific, measurable, achievable, realistic and time-bound manner.</p> <p>After setting the objectives, it is advisable to inform all employees about them through a meeting with each area manager.</p>	It must be taken into account that the objectives must be linked to the FSMS, communicated, controlled, updated and documented.								
<b>Status:</b> Partial	<b>Resources</b>									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Economic</th> <th style="width: 25%;">Technological</th> <th style="width: 40%;">Human</th> <th style="width: 10%;">Deadline</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Economic	Technological	Human	Deadline					
Economic	Technological	Human	Deadline							

	\$45	Computer	Management, heads of all areas.	2 weeks	
	<b>Responsible and verification:</b> the responsible is the general manager and it is verified by the record of the analysis performed to determine the food safety objectives.				

The following explains the action plan, from section 7 of ISO 22000, that the company is proposed to follow in order to have a good communication system.

Table 31:

*Action plan for identified caveats from ISO 22000, section 7.*

<b>ISO 22000 Standard Requirements</b>	<b>Action Plan</b>	<b>Remarks</b>
7. To have an efficient communication system with customers, suppliers and employees.  <b>Status:</b> Partial	To improve the company's communication, it is necessary to have all the employees' emails registered in the company's system. In this way, all kinds of information can be communicated through emails. And consequently, all workers can provide information to any supplier or customer who has questions.	

To document, a communications matrix should be created detailing: who, what, to whom and how information is communicated.			
<b>Resources</b>			
<b>Economic</b>	<b>Technological</b>	<b>Human</b>	<b>Deadline</b>
\$50	Computer	Human resources area, manager's secretary and salespeople.	1 week
<p><b>Responsible and verification:</b> the person responsible for keeping the information is the head of human resources, but the person who informs the workers of all types of information is the general manager's secretary. This is verified through the receipt of the company's informative mails and the communications matrix.</p>			



## CONCLUSIONS

International certification standards are of utmost importance for companies around the world. Not only do they help them gain recognition, increase their competitiveness and efficiency and open doors to new markets, but they also help companies to implement improvements in different areas of the company, to keep order in their processes and to obtain better quality.

Piggis has grown over the years, having to expand its infrastructure, create new products, implement new and better machinery, hire more employees and supply new customers.

To begin with, an analysis of the company was carried out, where the main topics such as the production process and the SWOT and PESTEL analyses were studied. The production process was reviewed from the reception of raw materials to the delivery of the finished product. The SWOT analysis showed that the company has advantages such as regulatory and normative compliance, GMP certification, new infrastructure, technological innovation and the acquisition of new machinery. On the other hand, its disadvantages are concern about the war between Russia and Ukraine, lack of customer service, expensive raw materials and lack of variety in meat products. Finally, in the PESTEL analysis it was observed that some factors such as the instability of the government and country, the exchange rate in Ecuador, access to internet and the climate affect the company to a certain extent. However, there are legal factors such as environmental, business and labor regulations that the company must implement because they are mandatory.

After the analysis of the Piggis company, the types of management systems and standards that can be applicable to the management of food companies were investigated, among which ISO 22000, ISO 9001, GMP and HACCP could be seen. It was considered that the most appropriate standard is ISO 22000 under the aspects that the Piggis company requires. However, since ISO 9001 is the basis for all systems, it was considered pertinent to carry it out as well, since by completing it, it would be more feasible to obtain and comply with ISO 22000 certification. For this reason, Piggis underwent an internal audit of the two standards in order to see which aspects of the

standards the company complies with, does not comply with, or partially complies with. Thus, after the internal audit, the main results showed that there are certain aspects that the company does not comply with, such as: documentation in some processes, the delimitation of stakeholders and the creation of action plans. However, as Piggis has GMP certification, several of the points addressed in the internal audit were more easily fulfilled.

Finally, an action plan was proposed with the tasks that would be necessary to close the gaps between what the standard states and corrective actions that would allow Piggis to be better prepared in the future for the accreditation process, taking into account that all the actions recommended in this work are not to ensure compliance with the standard but will leave the company much better prepared for the time of accreditation.

## **RECOMMENDATIONS**

As recommendations, it is suggested to the company that, although it is not mandatory, it should take into account the recommendations detailed in the action plan, as this will allow it to have a better organization and control of its processes and to be better prepared for an accreditation process. Similarly, the company is recommended to start documenting the activities that it already performs such as the internal audit by the management, the root cause analysis and the authorization for changes to any product in order to avoid a long work at the time of obtaining the certification.



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