

UNIVERSITAT
JAUME • **I**

**PRACTICAL TOOLS IN OPERATIONS
MANAGEMENT: AN APPLICATION IN THE FIELD
OF DIGITAL CONSULTING.**

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INDEX

A. INDEX OF TABLES	2
B. INDEX OF ILLUSTRATIONS	2
1. INTRODUCTION AND OBJECTIVES	3
2. THEORETICAL FRAMEWORK.....	4
2.1. Operations Management.....	4
2.2. Strategic models in operations management.....	5
2.2.1. Emphasis on operational objectives.....	7
2.2.2. A sustainable strategy	9
2.2.3. Way of combining strategies.....	10
2.3. Process design.....	11
2.3.1. Product design	12
2.3.1.1. Design of manufactured products.....	13
2.3.1.2. Service design.....	13
2.4. Process flow analysis	14
2.4.1. Systems	14
2.4.2. The company as a process system.....	14
3. ANALYSIS AND RESULTS.....	24
3.1. About the company	24
3.2. The team	25
3.3. Customers and contracted services	25
3.4. Simbionte Operations Strategy Process	26
3.5. Internal analysis (SWOT analysis)	28
3.6. External analysis (PESTEL analysis).....	29
3.7. Simbionte company process flow diagram	31
3.8. Results	35
4. CONCLUSIONS	37
5. REFERENCE LIST	38

A. INDEX OF TABLES

Table 1: Strategic alternatives	11
Table 2: Symbology American Society of Mechanical Engineers (ASME)	19
Table 3: Symbology American National Standard Institute (ANSI)	21
Table 4: International Organization for Standardization Symbology (ISO)	22
Table 5: Symbology German Institute for Standardization (DIN)	24
Table 6: Symbology for this work.	34

B. INDEX OF ILLUSTRATIONS

Illustration 1: Operations as a process	5
Illustration 2: Operations Strategy Process	7
Illustration 3: Flowchart symbols	19
Illustration 4: Organization chart of Simbionte	27
Illustration 5: Simbionte SWOT Analysis	29
Illustration 6: Flowchart of the Simbionte company.	36

1. INTRODUCTION AND OBJECTIVES

The realization of this work is given by the current importance of the operations function in companies. Companies are in very dynamic environments, and the operations function, which allows the planning, organization and supervision of the manufacturing and distribution processes of products or services, allows organizations to manage and control the changes that could be adopted as a consequence. of adaptation to the environment.

In addition to being essential for decision-making, this business function is useful when analyzing the different processes carried out by the entity and, in this way, finding errors or possible improvements in them. From the customers' perspective, it is also a necessary function, since it is the one that is in charge of delivering goods or services that add value to consumers.

Today, there are a number of issues that are important to the operations function and need to be considered by both current and future COOs.

First, services and manufacturing are highly interrelated by supporting each other, which is why operations must address both.

On the other hand, operations must be directed at meeting the needs of consumers, so you have to listen to the customer. This issue can in turn be related to the integration of operations with other business functions, since it is observed that the operations function is related to marketing in the search for customer satisfaction.

Another relevant issue is the concept of lean manufacturing, which seeks to improve flows and get rid of activities that do not generate value for the company or the customer. It is about doing only what is essential to satisfy the customer.

Green supply chains and sustainability have gained strength in recent years as a result of climate change and are issues in which operations can have a positive impact, since they can modify the production process to reduce pollution, as well as use lean operations to improve the supply chain by accelerating flows and reducing waste.

Finally, the integration of economies around the world leads to the globalization of the operations function. In this field, it is essential to design strategies and make decisions with a global vision. (Schroeder et al., 2011)

The **objective of the work** is, after analyzing the different processes related to the operations management of the company Simbionte EE, prepare a **flowchart** that facilitates the detection of possible **errors** in the production process, duplication of functions, continuous **improvements** in the quality of the product/service offered by the company and offer solutions to possible problems.

2. THEORETICAL FRAMEWORK

2.1. Operations Management

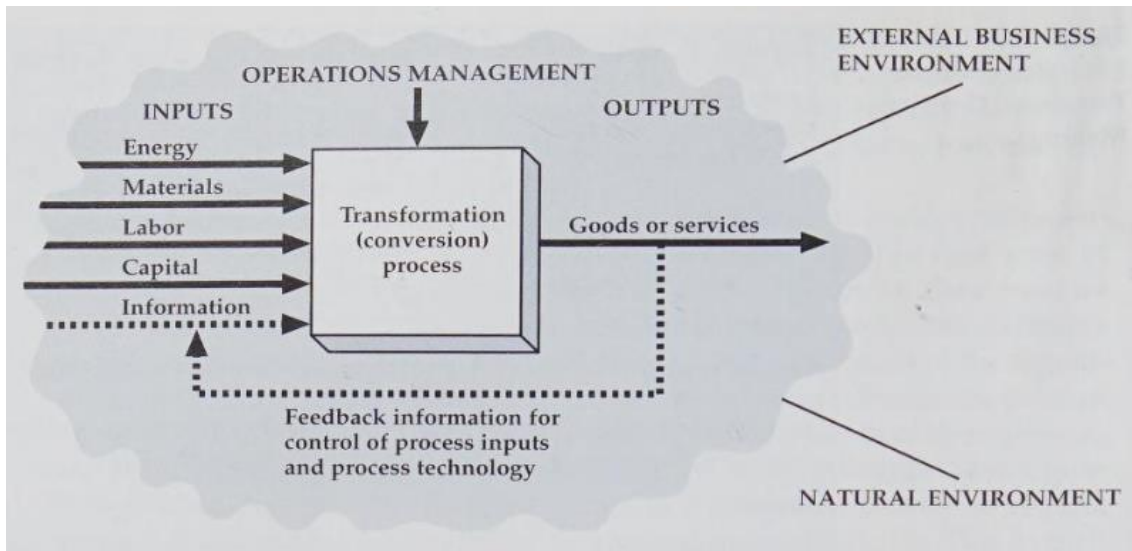
All organizations thrive on producing and delivering goods or services that buyers find valuable. What is valuable to one customer may not be to another.

Companies strive to understand the true value of the products or services they provide. They then apply this understanding to make decisions that influence the production and supply of these goods and services. These decisions affect the planning and execution of operations and must be coordinated with the actions taken by the head of the purchasing and logistics function. The purchasing function is responsible for providing the necessary inputs to carry out the transformation process. On the other hand, the logistics function is usually in charge of the flow of inputs within the organization. (Schroeder et al., 2011).

The theoretical framework included in my bibliographical review is the operations strategy model where operations management can be defined, therefore, as the design, operation and improvement of the systems and processes that produce and provide the goods or services of a company. (Jacobs & Chase, 2014). This definition is based on three aspects:

1. **Decisions.** Decision making is a key element of operations management. Focusing on decisions allows you to divide operations according to the type of decisions that are made around each operation. The operations manager must make decisions related to four areas: processes, quality, capacity and inventory. However, you will also need to make decisions about relationships with other organizational functions and across the supply chain.
2. **Function.** The operations function is essential in any organization, as can be the marketing function. Generally, it usually refers to the function that produces the goods or services of a company.
3. **Process.** Operations managers plan and control the transformation process, but in addition, by adopting this perspective of the process, they also obtain information to manage the processes of other functional areas of the company. The following illustration shows the operations function from a process perspective.

Illustration 1: Operations as a process



Source: (Schroeder et al., 2011)

Ultimately, operations management focuses on how organizations produce goods and services. Everything you use every day, from the clothes you wear, to the food you eat, the furniture you sit on, the products you use, the books you read, or the sports equipment you use, have all been made thanks to the operations managers who they planned their production. Every book borrowed from the library, every treatment you receive in the hospital, every service you expect in the shops, and every lecture you attend at the university, has been designed and produced by these people. (Slack et al., 2010)

2.2. Strategic models in operations management

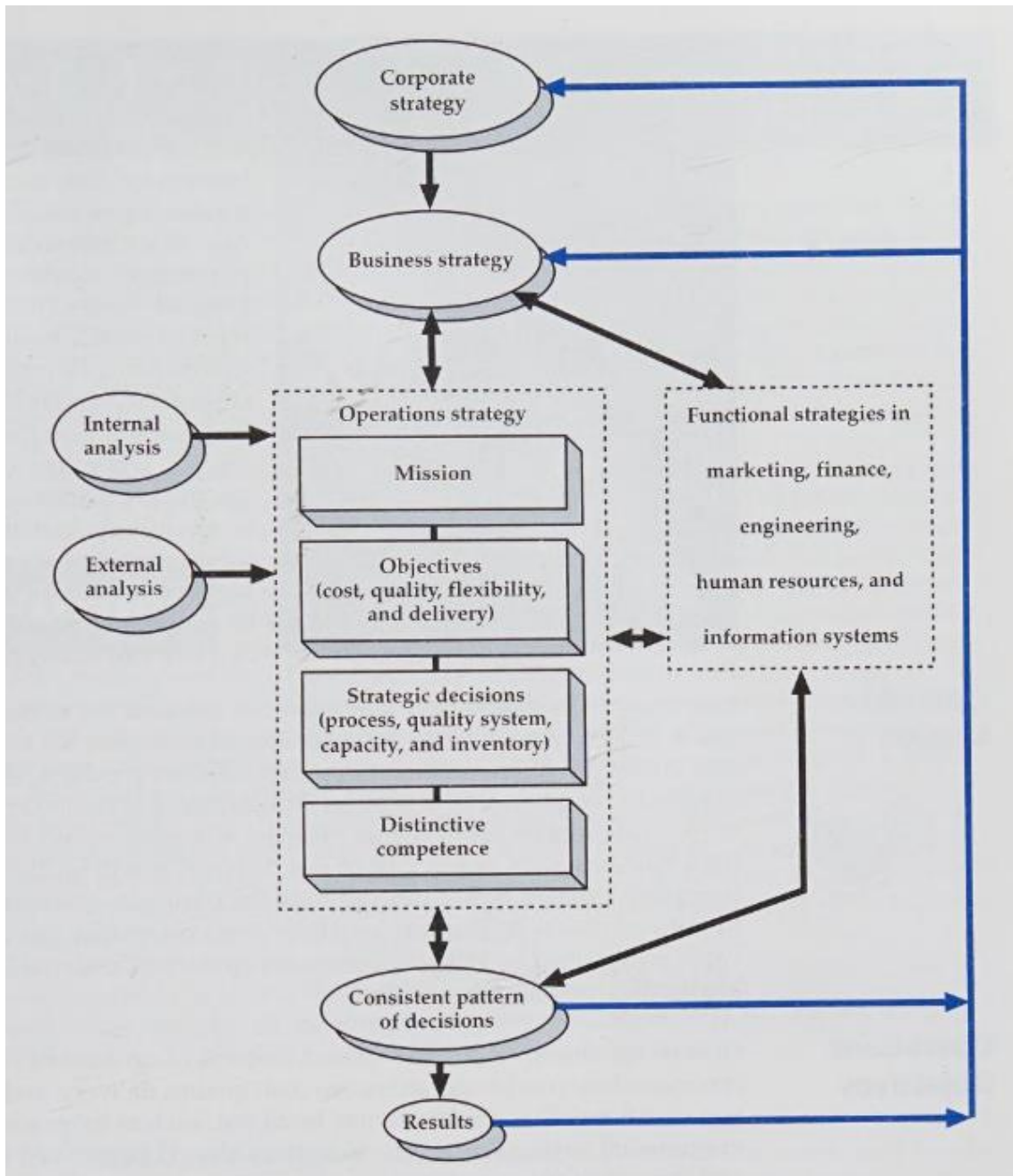
As Schroeder (2011) puts it:

The operations strategy is a consistent pattern of decisions for the transformation system and for the associated supply chain that are linked to the business strategy and other functional strategies, leading to a competitive advantage for the company.

The substance of operations strategy comprises the precise choices and measures that establish the role, objectives, and activities of operations. The procedure of operations strategy is the approach employed to shape the particular 'substance' choices. (Slack et al., 2010)

The following illustration shows the process to be followed by the operations strategy:

Illustration 2: Operations Strategy Process



Source: (Schroeder et al., 2011)

The operations strategy must be integrated into the corporate strategy and must be guided by the business strategy. The first can be defined as the activity carried out by the company, the second derives from the first and establishes how it should compete in each business. Porter (1980) distinguished three types of strategies in this sense: differentiation, linked to unique and often innovative products; cost leadership is associated with products that satisfy basic or generic needs and with imitation products; finally, focus refers to specific geographic or product portfolios and this type of strategy can be combined with the two previous strategies.

The dashed box represents the key elements of the trading strategy. All operations must have a clear mission that is connected to the business strategy and is consistent with the other functional areas of the company.

The second element of the strategy is the operations objectives. The most common in the operations function are cost, quality, lead time, and flexibility, although in certain situations others such as sustainability or innovation may be included. These objectives must be derived from the operations mission, and therefore be consistent with it and reaffirm it specifying in quantitative and measurable terms. They must also be oriented to the long term (5-10 years) in order to compare it with the current year and to be able to establish comparison points (benchmarking) to verify whether or not they are ahead of the competition.

Strategic decisions make up the third element of operations strategy. These decisions indicate how they will get the targets set for operations. It is essential to have a consistent decision pattern for all decision categories (process, quality, capacity and inventory) and these must be integrated with the other functional decisions. (Schroeder et al., 2011)

Operations must also be aligned with the distinctive competencies of the company, that is, with those activities that the company performs better than the competition, the resources it controls and the knowledge and skills it possesses and whose exploitation confers a sustainable advantageous competitive position in time (competitive advantage). (Sanchez Ruiz et al., 2021)

2.2.1. Emphasis on operational objectives

All four operations objectives (quality, cost, lead time, and flexibility) can be used to compete in this arena. All these objectives are related to each other and are connected, since, for example, if the company pursues a reduction in delivery times, flexibility automatically improves when the company adapts to the new deadlines. However, on many occasions the objectives compensate each other, for example, an improvement in quality based on new technologies and machinery, can lead to an increase in costs. Although it is not always possible to avoid these compensations, as the company carries out its activity and matures, better processes and practices are being discovered that can reduce the occurrence of these trade-offs. (Schroeder et al., 2011)

- **Quality.** When talking about quality, it is understood as the consistent production of services and products according to specifications, which not only results in external customer satisfaction, but also simplifies life within the operation. Quality contributes to cost reduction, since by minimizing errors in each operation process, less time is required to correct them and confusion is avoided. Quality also increases reliability, since additional costs are not the only consequence of poor quality.
- **Cost.** For companies that compete directly on price, cost is clearly their primary operating objective. The lower the cost of producing your goods and services, the lower the price you can offer your customers. Even those companies that do not compete based on price will be interested in keeping their costs down. Every euro or dollar that can be removed from the cost base of an operation will represent an additional profit for the company. Not surprisingly, the low-cost lens is universally attractive. The ways in which operations management can influence costs largely depend on where costs occur in the operation. The operation will spend its money on personnel (money invested in hiring personnel), facilities, technology and equipment (money invested in the purchase, maintenance,

operation, and replacement of the operation's physical assets), and materials (money invested in the purchase of materials that are consumed or transformed in the operation).

- Delivery term. Also known as speed. Velocity refers to the lapse of time between the request for products or services by customers and their receipt. Within the operation, speed acquires great importance. An agile and fast response to external clients is achieved thanks to decision making and rapid mobilization of materials and information within the operation. In addition, there are other benefits.

Speed also contributes to inventory reduction. The longer the time it takes for items to move through a process, the longer they will wait, and consequently, the higher the inventory.

Likewise, speed helps to reduce risks. Forecasting the events of the near future is less risky than forecasting the next year. The longer the forecast of companies is extended, the greater the probability of being wrong. By accelerating the lead time of a process, forecasting can be postponed, thereby reducing associated risks.

- Flexibility. Flexibility implies having the ability to modify the operation in some way. This may involve changes to what the operation does, how it does it, or when it does it. Developing a flexible operation can also have benefits for internal users within the operation.

Flexibility saves time. Flexibility can be a powerful tool for saving time in an operation. Instead of having a fixed, rigid process that can only handle a specific type of work, a flexible operation can accommodate different types of work and tasks. This means that the transition time from one task to another is significantly reduced, which in turn can increase efficiency and productivity.

Flexibility in an operation can also help maintain reliability. When unexpected events occur that disrupt operation plans, internal flexibility can help keep operations on schedule. In general, flexibility can help ensure that the operation can meet customer expectations and maintain a reputation for reliability.

Considering these objectives, it is important to recognize that there may be an interaction between them that implies possible trade-offs. That is, when seeking to improve performance on a given objective, it is likely that sacrifices will be required in the performance of other objectives. (Slack et al., 2010)

It is worth noting the role played by strategic decisions (a vitally important element of the operations strategy), since it is these decisions that will mark the steps to follow to achieve the objectives. Therefore, it is convenient to answer the following questions:

1. How to produce? That is, what processes are going to be used?
2. How much to produce? This question is directly related to the strategic capacity decision.
3. What level of quality do you want to offer yourself? How are you going to achieve that level of quality?
4. What sourcing strategy will you follow each other? What costs are associated with inventories? These questions, along with others, will help to know the level of inventories that the company will follow. (Sanchez Ruiz et al., 2021)

2.2.2. A sustainable strategy

The strategy must cover how it is planned to generate and maintain value for both shareholders and stakeholders, with the addition of sustainability as a fundamental requirement. This implies the need to meet current needs without jeopardizing the ability of future generations to do the same. Shareholders refer to individuals or companies that own shares of the company as established by law. Today, many companies have broadened their strategic focus to include not only shareholders, but also stakeholders, which are those individuals or organizations that are directly or indirectly affected by the company's activities. This broad approach means that the strategy must consider not only the economic viability of shareholders, but also the environmental and social impact on stakeholders.

The term triple objective was coined to understand the expanded view that considers the evaluation of the company in social, economic and environmental terms. Many companies have adopted this approach through objectives that integrate sustainability in each of these dimensions. The three dimensions of the triple bottom line framework are detailed below:

- Social dimension. It refers to fair and beneficial financial practices, as well as the region in which the company does business. A company with a triple objective seeks to benefit its employees, the community and other social entities that are affected by its existence. The company must avoid the use of child labor, guarantee fair wages and maintain a safe work environment with flexible hours and not exploit the community or its workforce. You can also help your community grow through health care, education, and other special programs.
- Economic dimension. The company is required to provide a competitive return on investment to shareholders who contribute capital through the purchase of shares and other financial instruments. The company's strategies must promote growth and grow long-term value for this group in the form of profits. In a sustainability framework, this dimension goes beyond simply providing profit, it also provides lasting economic benefits to society.
- Environmental dimension. It refers to the company's impact on the environment. The company must protect the environment as much as possible, or at least not cause harm. Managers must act to reduce ecological damage by carefully managing the consumption of natural resources and reducing waste, and ensuring that waste is less toxic before safely and legally disposing of it. Many companies now evaluate their products end-to-end to determine the true environmental costs, from raw material processing through manufacturing and distribution, as well as final disposal at the end customer's expense. (Jacobs & Chase, 2014)

2.2.3. Way of combining strategies.

The objectives are interconnected, but that alone is not enough, the entire operations strategy must be connected with the business strategy and that of the rest of the functional areas (marketing, finance, etc.). This connection can be seen reflected in the following table, which shows two opposing business strategies:

Table 1: Strategic alternatives

Business strategy	Copycat product strategy	Innovative product strategy
Market conditions	<ul style="list-style-type: none"> - Mature and price sensitive market. - High volumes. - Product standardization. 	<ul style="list-style-type: none"> - Product sought for its characteristics. - Emerging markets. - Low volumes. - Product customization.
Operations mission	Emphasis on low costs for mature products.	Emphasis on flexibility for the introduction of new products.
Operations-Based Competitive Advantage	Low costs based on superior process technologies and vertical integration.	Rapid introduction of new products through product teams and flexible automation.
Strategic Operations Decisions	<ul style="list-style-type: none"> - Superior processes. - Dedicated automation. - Slow reaction to changes in the environment. - Scale economics. - Labor force participation. 	<ul style="list-style-type: none"> - Superior products. - Flexible automation. - Quick reaction to changes in the environment. - Economies of scope. - Use of product development teams.
Marketing strategies	<ul style="list-style-type: none"> - Mass distribution. - repetitive sales. - Maximize sales opportunities. - National sales force. 	<ul style="list-style-type: none"> - Selective distribution. - Market development. - Design of products. - Sales through agents.
Financial strategies	Low risks and profit margins.	Risks and high profit margins.

Source: (Schroeder et al., 2011)

As can be seen, there is the imitator (or low-cost) product business strategy, which is characteristic of a mature and price-sensitive market with a standardized product. In this case, the operations objective should emphasize cost minimization as the primary objective, and operations should strive to reduce expenses through strategic decisions such as superior process technology, reduced personnel costs, low inventory levels, a high degree of vertical integration and quality improvements aimed at reducing costs. Likewise, the areas of marketing and finance would follow and they would endorse the business strategy of the product imitator.

The second business strategy shown in the table is product innovation and new product introduction (or product leadership). Typically, this strategy would be applied in emerging and possibly growing markets, where an advantage can be gained by offering superior quality products in a short period of time. Price would not be the dominant form of competition, and higher prices could be set, implying less focus on costs. In this case, operations and the supply chain are focused on the flexibility to introduce new superior products quickly and effectively as the main objective. Strategic operations decisions could include the use of equipment for new product introductions, flexible automation capable of adapting to them, a workforce with flexible skills, and possibly the acquisition of some external basic services and materials to maintain flexibility. (Schroeder et al., 2011)

The different business strategies that the company can adopt will require different types of operations, as shown in Table 1. Starting from the previous approach, in which marketing and finance are integrated into operations, Hill (2000) distinguished between two types of objectives:

1. The goal of the order winner differentiates between the products or services of one company and those of others. Depending on the situation, the criteria for winning orders can refer to the cost of the product (price), the quality and reliability of the product.
2. The order qualifier objective acts as a filter and even allows you to evaluate the company's products for possible acquisition. (Jacobs & Chase, 2014)

2.3. Process design.

The act of "designing" consists of devising the appearance, structure and functionality of something before its creation. In this sense, it is a conceptual exercise, but one that should result in a practical solution. Design is an activity that can be carried out at different levels of detail. You can start by visualizing the general shape and purpose of something before defining its details, as is often the case in process design. At the beginning of the process design activity, it is critical to understand the design objectives, especially when the overall shape and nature of the process is being decided. To achieve this, the most common way is to position it based on its volume and variety characteristics. Finally, the details of the process must be analyzed to ensure that it meets its objectives effectively.

We often treat the design of products and services, on the one hand, and the design of the processes that generate them, on the other, as if they were independent activities.

However, they are clearly interrelated. It would be foolish to commit to the detailed design of any product or service without considering how it is to be produced. Small changes in the design of products and services can have profound implications for how the operation ultimately produces them. Similarly, the design of a process may restrict the freedom of product and service designers to operate as wished. This is valid whether the operation is producing products or services. However, the overlap between the two design activities is generally greater in operations that produce services. Because many services involve the customer as part of the transformation process, the service, as seen by the customer, cannot be separated from the process to which it is subject. The overlap of product and process design has implications for the organization of the design activity. Surely when product designers also have to make or use the things they design, they can focus their attention on what's really important. (Slack et al., 2010)

2.3.1. Product design

Developing new products is essential for businesses today, since they offer the possibility of growing or gaining competitive advantages. The design of new products directly affects operations: it establishes the products that will be manufactured, the processes used, etc. Product design refers to both manufactured products and services. (Schroeder et al., 2011)

According to Jacobs and Chase, the six stages of the generic product development process are:

- Stage 0: Preparation. The preparation process, sometimes called the "primary stage", takes place before project approval and the actual start of product development. This stage begins with the strategic planning of the company and involves the evaluation of technological advances and market goals. The result of this preparation stage is the formulation of a vision of the project, which defines the target market for the product, the commercial objectives, the essential premises and the established limitations.
- Stage 1: Generation of ideas. During this stage, the demands of the target market are recognized, multiple product concepts are created and evaluated, and one or more concepts are chosen for further development and testing. The concept refers to a description of the form, function and attributes of a product, and usually includes specifications, an analysis of competing products and an economic rationale for the project.
- Stage 2: Elaboration of the system design. The stage of elaboration of the system design includes the conceptualization of the product structure and its breakdown into components and subsystems. In addition, the final assembly plan for the production system is usually established at this stage. The result of this stage commonly includes a graphic design of the product, a detailed specification of the operation of each subsystem and a preliminary diagram of the process flow within the final assembly process.
- Stage 3: Planning in detail. During this stage a thorough specification of the geometry, materials and tolerances of all unique parts of the product is carried out, as well as identifying standard parts to be procured from external suppliers. A process plan is prepared and the corresponding assemblies are designed for each component that will be manufactured within the production system. As a result of this stage, plans or digital files are generated that describe the geometry

of each part and the assembly necessary for its production, as well as the specifications of the parts to be acquired and the process plans to manufacture and assemble the product.

- Stage 4: Evaluation and adjustments. During this stage, the construction and evaluation of several versions of the product is carried out before starting its production. Early prototypes are often built with parts that have the same geometry and material properties as the final version of the product, but they are not always manufactured using the actual processes that will be used in future production. Prototypes are tested to determine if the product works as designed and meets customer needs.
- Stage 5: Production stage in transition. During this stage, the product is manufactured using the selected production system. The purpose of the transition production phase is to train personnel and address problems that may still persist in production processes. Products manufactured during this stage can be supplied to select customers and are thoroughly evaluated for possible defects that may affect their quality. (Jacobs & Chase, 2014)

2.3.1.1. Design of manufactured products.

The design of the product arises from the development of the business strategy. It will include a value proposition that defines the target market, product differentiation, and why customers buy the product. That is the starting point for the design of new products. There are three approaches to introducing new products:

1. Market based. The market determines which products the company must produce.
2. Technology boost. Organizations must seek technology-based advantages by developing superior technologies and products.
3. Cross-functional perspective. Products must not only meet market demand, but also have technical advantages. To achieve this, all functions must be involved in the design phase of new products.

The main stages followed by companies in the development of new products are: concept development (generation and evaluation of ideas), product design (physical design) and experimentation (production trials, product testing). (Schroeder et al., 2011)

2.3.1.2. Service design.

The design of a new manufactured product focuses on reducing the number of parts in the product and designing it so that it can be manufactured efficiently. The design of new services is very different, since the client is directly involved in the process. In this regard, the design of a service will focus on reducing the time it takes to serve the customer and the degree of knowledge required by employees. When creating or modifying a service, adaptation is a major problem, so three aspects must be taken into account:

1. Tailoring the service experience. The new service must be tailored to the customer's service experience.
2. Coupling of operations. All services require operations to be carried out.
3. Financial implications. Designing and applying a new service are expensive activities that must be justified in financial terms. (Jacobs & Chase, 2014)

The phases to create a service properly are:

- Concept generation transforms an idea for a service into a concept that captures the nature of the service and provides a general specification for its design.
- Concept evaluation involves examining its overall feasibility, acceptability, and vulnerability to ensure it is a sensible addition to the company's service portfolio.
- Preliminary design involves identifying all the component parts of the service and how they are integrated. Typical tools used during this phase include component structures and flowcharts.
- The evaluation and improvement of the design simply re-examining the design to see if it can be done in a better, cheaper, or easier way. Typical techniques used here include quality function deployment, value engineering, and Taguchi methods.
- Prototyping and final design involve providing the final details that enable the production of the service. The result of this stage is a fully developed specification for the service package, as well as a specification for the processes that will manufacture and deliver them to customers. (Slack et al., 2010)

2.4. Process flow analysis

Process flow analysis is used to visualize and analyze the transformation process as a series of steps that connect inputs to outputs. Seeks to find better procedures or methods when producing and delivering products that provide greater value to customers. The measurement of process flows is essential to analyze them and improve transformation processes. Flowcharts are tools that facilitate process flow analysis. They take into account process flows, inputs, customers, suppliers and workers who seek to design better processes.

2.4.1. Systems

Society is made up of organizations. An army or a school, in the same way as a company, are organizations. Organizations are made up of common elements: people, assets, tasks, goals and purposes, values, and interaction with the environment. These elements are the basis in the search for methods to study organizations. That is why it is recommended to do it from a systemic approach. (Balestri et al., 2003)

Similarly, all work can be seen as a system. A system can be described as a set of interrelated elements whose whole is greater than the sum of all its parts. Also, operations can be seen as systems. In this sense, the transformation system must be isolated from its environment by borders, which must include those elements that are relevant for the analysis or for making a decision. Defining the boundaries can be complicated and arbitrary, but it is necessary to do it to separate the studied system from the larger one.

2.4.2. The company as a process system

A company can also be thought of as a series of interconnected processes ranging from the acquisition of raw materials to the delivery of the final product. These processes cross the different functional areas of the company, such as production, logistics, marketing,

human resources and finance. Along this journey, information loss and workflow delays are possible.

This conception of the company as a network of interdependent processes is called the horizontal approach. In contrast, the vertical perspective focuses on the individual functions of the company and how they interrelate within each functional area. Each department has its own specific responsibilities and objectives, but it is crucial to understand that its efficiency and effectiveness depend to a large extent on the integration and collaboration with other areas. (Schroeder et al., 2011)

Therefore, a holistic approach is necessary that takes into account both horizontal and vertical perspectives, since when analyzing the company as an integrated system, value is added due to the improvement in efficiency, flexibility, productivity and competitiveness, which will allow us to meet customer expectations and offer a better and faster response to changes in the environment. (Serrano Gomez & Ortiz Pimiento, 2012)

2.4.3. Flowcharts

A flowchart is a visual representation used to describe a transformation process. It is a tool that can be very useful, since it helps to detect ways in which the process can improve: finding repetitive tasks, identifying bottlenecks, describing directions and distances between flows, reducing waste, etc. By analyzing the diagram, one or more of the following elements can be changed: raw materials, product/service design, job design, processing steps, management control information, equipment or tools, and suppliers.

When creating a flowchart, it is advisable to follow a series of principles in order to generate a diagram that is easy to understand and analyze. These principles are consistent with the process philosophy, which views the process as a system with inputs, outputs, customers, suppliers, limits, and processing steps and flows. The principles are the following:

1. Select a relevant transformation process to study, which can be the supply chain of a product or service, the entire company or a part of it. It is important that it is known in advance how this process affects performance.
2. Identify an individual or team responsible for flowchart development and subsequent analyses, who has familiarity and authority over the transformation process. If the process cuts across functions or companies, a cross-functional or cross-company team should be involved.
3. Establish the boundaries of the transformation process, identifying the start and end points, the customers and suppliers involved, and the activities to be evaluated. Functions or other companies can act as suppliers or customers, depending on the process selected.
4. Identify and sequence the operational activities necessary to complete the final product for customers, representing in the flowchart what actually happens. Once the diagram is created, an improved diagram can be designed to reflect the changes needed to improve the process.

5. Identify performance metrics for each step or operational activity of the transformation process. These metrics should be linked to the overall performance of the process, for example, throughput times or defect rate.
6. Draw the flowchart by defining and using symbols consistently. (Schroeder et al., 2011)

Several authors have described or adapted their own versions of the flowchart, among them we can find Andrew Veronis (1978) or Marilyn Bohl (1978). Some of the most common types of diagrams are:






- Decision flow diagrams. The decision diagram represents, as its name indicates, the decision-making process. This process involves the gestation of ideas, the consideration of relevant information, the intervention of interested parties and the administration of tasks. Through this diagram, it is possible to track the strategies, the impact of decisions and the achievement of goals. The decision diagram shows the set of possible alternatives for the determination of the objective system. In addition, it contributes to the analysis of the strategy both in terms of internal consistency and with respect to the environment, since it considers the contextual elements and the opinions of the interested parties. (Valentín Álvarez, 2014)
- Logical flow chart. The logic flowchart approach focuses on activities and conditions processes for quick, logical "Yes" or "No" answers. This tool is very useful for identifying bottlenecks in processes, which allows establishing possible solutions. Furthermore, it is mainly used in the development of algorithms.
- System flow diagram. This diagram presents the devices used in the process to facilitate the circulation of the data flow.
- Product/service flow chart. The purpose of the production flow diagram is to visually represent all the stages required for the production of a product or service.
- Process flow diagram. Flowcharts of this type illustrate the sequence of steps or activities that must be followed in a process, from the start to the decision points and the end.
- Document flow chart. It carries out a monitoring of the documents required in a process; it is similar to a documentation manual.
- Data flow diagram. The data flow diagram consists of the visual representation of the flow of information or data within a system.
- Program flow chart. The program flow chart illustrates the sequence of instructions that must be followed in the programming or development of software. This tool is highly beneficial since it allows following the precise sequence of the program, as well as conditioning the application of specific mathematical formulas and logical operations. (ExcelParaTodos, n.d.)

Flowcharts can also take different names depending on their layout or format: vertical, horizontal, panoramic, or architectural. The flow of operations in the horizontal model is directed from right to left, this being the most commonly used model. On the other hand, the vertical model is characterized by its flow and sequence of operations that go from top to bottom, presenting an ordered list of operations according to their purpose. The panoramic model represents the entire process on a single chart, using both the vertical

and horizontal models. Finally, the architectural model describes the work itinerary of a person or form in their work area. (Editorial team, Etecé, 2018)

The most commonly used symbols in diagrams are shown in the following illustration:

Illustration 3: Flowchart symbols




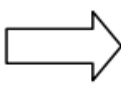

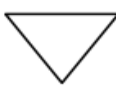
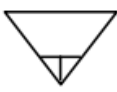
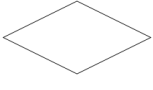
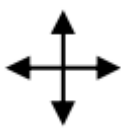

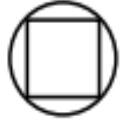
Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Source: (Flowchart Symbols, n.d.)

However, there are institutions that have developed their own symbols to create flowcharts. Examples of this are the American Society of Mechanical Engineers (ASME), the American National Standard Institute (ANSI), the International Organization for Standardization (ISO), the German Institute for Standardization (Deutsches Institut für Normung e.V – DIN), etc. Next, the mentioned institutions will be introduced and tables will be included with the symbols used by these entities:

- ASME (American Society of Mechanical Engineers) is a nonprofit organization that promotes collaboration, knowledge sharing, and skill development across all engineering disciplines. Founded in 1880 by a group of industry leaders, ASME has grown to become a global association with more than 120,000 members in more than 140 countries. The association represents a wide variety of technical disciplines and its members range from college students and early-stage engineers to project managers, business executives, researchers and academic leaders. ASME offers high-quality continuing education, training, and professional development programs, standards and certifications, research, conferences and publications, government relations, and other forms of outreach to serve this broad technical community. (Workgroup on ASME Codes and Standards for Mechanical and Other Engineering Students, n.d.)

Table 2: Symbology American Society of Mechanical Engineers (ASME)

Symbol	Meaning	Utility
	Origin	It is used to identify the step that originates the process, but is not part of it.
	Operation	Indicates the main phases of the process. It occurs when a product, service, document, etc. is intentionally transformed.
	Inspection	Indicates that a process step is verified in terms of: quantity, quality... It is a control step
	Transport	Indicates transfers of documents, products...
	Delay	Indicates that the process is stopped because it requires the execution of another operation.
	Storage	Indicates the permanent deposit of an input in a warehouse.
	Temporary storage	Indicates the temporary storage of an input in a store, while the next step is started.
	Decision	It indicates a point within the process at which different decisions can be made.
	Flow lines	It serves as a link between symbols and indicates the order in which the operations must be carried out.
	Operation and origin	Simplifying two activities in one. In this case, this symbol indicates that the process is started through an operation.
	Inspection and operation	Simplifying two activities in one. It indicates that the main purpose is to carry out an operation, during which some inspection can be carried out.





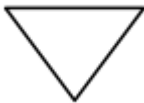
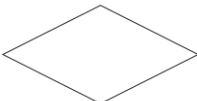
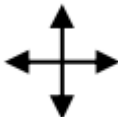


Source: (Ministry of National Planning and Economic Policy, State Modernization Area, 2009)

- ANSI is a non-profit organization in charge of coordinating and regulating technological and industrial standards and regulations in the US since the beginning of the 20th century. Currently, it has the participation of more than 125,000 companies in the US and more than 250,000 globally, consolidating itself as the most influential technological entity.

Among ANSI's outstanding functions is the development of technological and communication standards in collaboration with North American legislative powers. In addition, it acts as an intermediary between consumer organizations, the US Government and other business associations.

ANSI also oversees the application of technology in various fields with the goal of improving the well-being of citizens or the competitiveness of companies. Likewise, it accredits methodologies to validate new production methods or technological services. Finally, ANSI promotes the adoption of American standards in other countries as a model for improving other technology markets. (Sanchez, 2021)

Table 3: Symbology American National Standard Institute (ANSI)

Symbol	Meaning	Utility
	Start / End	Indicates the beginning and end of the diagram.
	Operation / Activity	Symbol that represents the performance of an activity related to a process.
	Document	It represents any type of document that enters, is used, is generated or leaves the process.
	Data	Indicates the input and output data.
	Storage / File	Indicates the permanent deposit of a document or information inside a file.
	Decision	Indicates a point within the process at which different decisions can be made.
	Flow lines	It serves as a link between symbols and indicates the order in which the operations must be carried out.
	Connector	Join two non-consecutive steps within the same page.
	Page connector	Represents the flowchart continuity on another page.







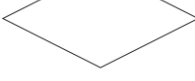
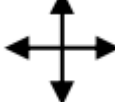



Source: (Ministry of National Planning and Economic Policy, State Modernization Area, 2009)

- ISO stands for International Organization for Standardization, an entity that establishes internationally recognized standards with the purpose of helping companies maintain a high level of homogeneity in management, service provision and product development in the industry.

The ISO organization was founded in 1946 from the merger of other organizations that were dedicated to the regulation and establishment of standards for manufacturing, such as the International Federation of National Standardizing (ISA) and the United Nations Standards Coordinating Committee (UNSCC). The first meeting took place at the Institute of Civil Engineers in London, and was attended by 64 delegates representing 25 countries.

Over the years, ISO has created more than 23,000 standards covering various areas of management, technologies, and production processes. This non-governmental organization is present in 164 countries, with 781 technical committees and subcommittees involved in the development of standards. Its headquarters are located in Geneva, Switzerland. (Consulting Department, GlobalSuite Solutions, 2022)




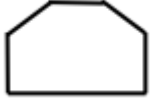

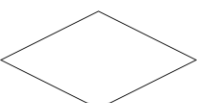
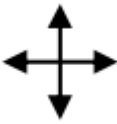
Table 4: International Organization for Standardization Symbology (ISO)

Symbol	Meaning	Utility
	Operation	Indicates the main phases of the process.
	Operation and inspection	Indicates the supervision of the components during the phases of the process.
	Inspection and measurement	The nature, quantity and quality of inputs and products are verified.
	Transport	Indicates transfers of documents, products...
	Goods entry	Entry of materials or goods in the process.
	Storage	Indicates the permanent deposit of an input in a warehouse.
	Decision	It indicates a point within the process at which different decisions can be made.
	Flow lines	It serves as a link between symbols and indicates the order in which the operations must be carried out.
	Delay	Indicates that the process is stopped because it requires the execution of another operation.
	Connector	Join two non-consecutive steps within the same page.
	Page connector	Represents the flowchart continuity on another page.

Source: (Ministry of National Planning and Economic Policy, State Modernization Area, 2009)

- The term DIN is an abbreviation for the German Institute for Standardization, or Deutsches Institut für Normung in German. This body was founded in Berlin in 1917 and is responsible for establishing technical standards to guarantee the quality of production at a scientific and industrial level. These standards apply to companies, commerce, consumers and public institutions and are used as guidelines for the standardization of products and services both nationally and in countries where there is no local regulation for a specific product. Like international organizations such as ISO, DIN performs similar functions and seeks to keep up to date with the state of science to guarantee quality and safety in production and consumption. In fact, the regulation of DIN standards sometimes influences the regulation of other international standardization bodies. (Bembibre, 2009)

Table 5: Symbology German Institute for Standardization (DIN)

Symbol	Meaning	Utility
	Process	Symbol that represents the performance of an activity related to a process.
	Document	It represents any type of document that enters, is used, is generated or leaves the process.
	Data	Elements that feed and are generated in the procedure.
	Start	Start of a cycle that produces or reproduces a flow of information.
	Manual operations	Indicates the performance of an activity manually.
	Decision	It indicates a point within the process at which different decisions can be made.
	Flow lines	It serves as a link between symbols and indicates the order in which the operations must be carried out.

Source: (Ministry of National Planning and Economic Policy, State Modernization Area, 2009)

3. ANALYSIS AND RESULTS

3.1. About the company

Simbionte is a digital consultancy specialized in the scientific sector that helps science-based companies (startups and SMEs, schools and communities, and scientific public service trades such as pharmacies, opticians, clinics, doctors, health stores...) to connect with your audience, position your products or services and achieve your goals. The company was founded in 2022 and its tax address is at Calle Colón 4, 6º derecha, 12530, Burriana, Castellón. Their work is characterized by collaboration: they become part of the team of the company interested in their services and help them solve challenges related to the field of marketing and communication.

The company focuses on creating digital strategies and products for scientific brands looking to grow. They collaborate with the marketing teams of startups, SMEs and large science-based companies; or become their own team. Its mission is to become the all-in-one digital partner of science-based companies to help them grow, providing solutions to all their strategic, communication and business needs. If we dig deeper, these are the activities that Simbionte carries out:

- Content marketing:
 - Design of content strategies.
 - Creation of omnichannel content (social networks, blog, newsletter, podcast)
 - Community management.
- Scientific and medical writing:
 - Creation of educational communication materials.
 - Creation of commercial communication materials.
 - Support in events and writing reports.
 - Creation of posters for congresses and research events in the pharmaceutical industry.
 - Creation of presentations for oral presentations in scientific congresses.
 - Writing abstracts for scientific congresses.
 - Writing articles in the field of biotechnological and biomedical research.
 - Management of the publication process of scientific articles in refereed journals.
- Marketing digital:
 - Sales funnel design and customer journey strategy.
 - Implementation of marketing automation.
 - Optimization and management of search campaigns (SEO, ads).
 - Conversion rate optimization and analysis (CRO).
- Design:
 - Brand book creation.
 - Creation of web pages, from design to development through the use of no-code tools.

The company revolves around four values:

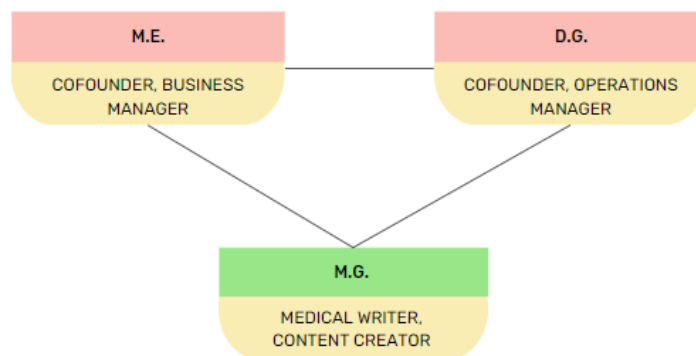
1. Rigor. They investigate and contrast all information using reliable sources.
2. Simplicity. They avoid convoluted ways of communicating science and empathize with the target audience through clear communication and minimalist designs.

3. Innovation. They investigate new ways to communicate science, to solve problems, and to be agile.
4. cooperation. They work side by side with the client. They become part of your team. They are not rigid at work.

3.2. The team

It is a small company with three members: the two founders, M.E. and D.G., and a worker, M.G.. M.E. is a biotechnologist and has an MBA. He has experience in sales, marketing and ecommerce. He has worked at Lilly, Procter & Gamble, and Hospital Angeles Health System. He started with Bioemprender, the bio talent community with +120k followers on social networks and is a professor at several pharmaceutical business schools. He also has a postgraduate training in Digital Marketing and eCommerce taught by the ENEB. D. G. is also a biotechnologist and has an MSc in Health. He has experience in medical writing and digital content creation. He has worked at the WHO and BCNScience (now Evidenze). He was the content creator for Bioemprender and is also a professor at several pharmaceutical business schools. On the other hand, M.G. is biotechnologist and PhD in biotechnology from the Polytechnic University of Valencia, where, in addition to completing her training as a researcher, she has taught some subjects in the Chemical Engineering, Biomedical Engineering or Biotechnology degrees. During her time as a trainee researcher, she has participated in numerous national and international conferences, in European projects and published articles in peer-reviewed scientific journals. He currently works at Simbionte as a Medical Writer.

Illustration 4: Organization chart of Simbionte



Source: Self-made

3.3. Customers and contracted services

Simbionte currently works for important companies within the pharmaceutical and biotechnology sector:

1. PROSPER Biotech. Pharmaceutical company that manufactures neurocosmetic products for sensitive skin (atopic dermatitis, peripheral neuropathy, hyperhidrosis, anal and vaginal itching...), marketed through the web (shipments to Spain and Portugal) and pharmacies (national distribution). He was born in

2019, however, his story begins more than 20 years ago, studying the skin from the laboratories of the Miguel Hernández University of Elche. Simbionte manages PROSPERA's social networks and is in charge of both publications and community management tasks (answering messages, comments, etc.). They also manage blog posts, manage the budget for Google Ads campaigns, and optimize ads; they carry out audits analyzing metrics, both from social networks and from ad campaigns and the web; and carry out video editing tasks on demand.

2. DIVERSA Technologies. Biotechnological spin-off of the Santiago de Compostela Health Research Institute and the Galician Health Service, which bases its value proposition on lipid formulations for drug delivery, marketed in different countries through official distributors, with the option of being customized specifically for each client. Diversa hires the management of social networks and the blog. Added to this is the preparation of a newsletter with information provided by DIVERSA, the management and optimization of ad campaigns on Google, the maintenance of the website and the analysis of metrics from social networks, mailing, web and advertisements.
3. REVEAL Genomics. Spin-off whose main objective is to develop precise cancer diagnostic tools based on the combination of different genomic data. They produce a genomic test that makes an accurate diagnosis of breast cancer in HER2+ patients at an early stage. The services that Simbionte performs for REVEAL Genomics are two: the publication in social networks in English with a frequency of six publications per month and the publication of news in English on the blog.

In addition, thanks to the business manager, who has good communication skills, he was able to sign a contract with a Mexican production company that makes video clips, advertisements and participated in the production of a film. This was during Manuel's business trip to the Central American country. This production company is known as Pirotecnia Films. The works carried out by Simbionte for Pirotecnia Films are the following: a brandbook in which the new logo and typography, the color palette and storytelling services were determined; the development of a strategy for social networks that includes themes, keywords, design suggestions and hashtags strategy, in addition to the corresponding audit analyzing social network metrics; and the development of ad campaigns in Google Ads.

3.4. Simbionte Operations Strategy Process

Following the operations strategy model shown in illustration 2 on the operations strategy process, we are going to analyze the elements of the operations strategy starting with the corporate strategy, business strategy, mission and vision, strategic objectives, strategic decisions (process, quality, capacity and inventory) and distinctive competencies. Next, the internal and external analysis will be carried out with the SWOT and the PESTLE.

Corporate strategy. Currently, the aim is to position Simbionte as the digital marketing agency of choice for companies in the biotech and healthtech sector. In 2023 we want to triple the turnover of the year 2022 (€40,000) and get 6 recurring customers.

Business strategy. Simbionte sought to develop a solid growth strategy with the goal of penetrating the biotech marketing sector. Aware of the importance of standing out and establishing its presence in the market, Simbionte focused on the implementation of a content marketing strategy, an effective tool to increase its visibility and demonstrate its expertise to companies in the sector.

Mission. Simbionte's mission is to become the all-in-one digital partner of science-based companies to help them grow, providing solutions to all their strategic, communication and business needs.

Strategic objectives. The company does not seek a reduction in its costs, but tries to differentiate itself from other similar companies. To do this, it has experts in the field of marketing and science, and merges this team of experts with the team of the client company in order to personalize and adapt the service as much as possible to the needs of its clients. Delivery times vary depending on the contracted service. In addition, some services (for example, the creation of a pitch deck) have an express delivery option thanks to which the client can receive their service in less time, in exchange for a higher amount. In terms of quality, they seek to offer the highest quality service, however they do not have ISO standards or standards or metrics that allow measuring whether these quality ideals are achieved.

Strategic decisions. Process: Simbionte has established a structured approach to its process by distinguishing between the various categories of service. The process is based on recognizing that each service category requires a unique and tailored approach to meet the specific needs of its customers.

Quality: Once a project is complete, the co-founders they receive the completed work and carry out an exhaustive review and analysis process. Their experience and in-depth knowledge of the field of scientific digital marketing allows them to evaluate every aspect of the project and detect opportunities for improvement.

Capacity: Given the small number of workers, Simbionte has adopted an efficient strategy to optimize its capacity and guarantee maximum customer satisfaction. Rather than take on an excessive project load and risk compromising quality or delivery time, careful prioritization is established based on each client's specific requirements.

Inventory: Thanks to the digital nature of the services offered by the company, all the content generated and the resources used in each project are stored safely and organized in folders hosted on Google Drive.

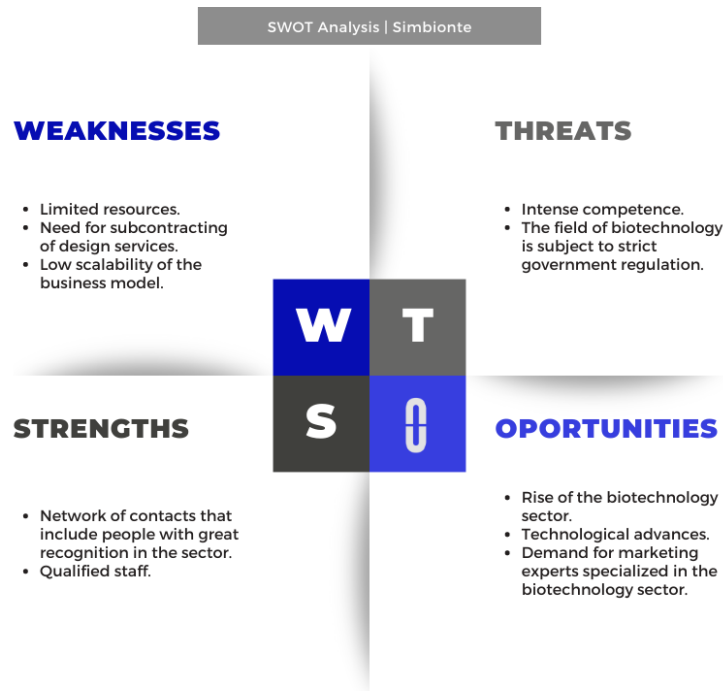
Distinctive competencies (competitive advantage). Simbionte's competitive advantage is based on two fundamental pillars

- a. The high level of knowledge and experience of its team of workers. The Simbionte team has extensive training and expertise in various areas related to the industry, which allows them to approach projects with a multidisciplinary approach and offer comprehensive solutions to their clients.
- b. Collaborative capacity. Unlike other companies in the sector, Simbionte is not limited to executing the assigned tasks, but is actively involved in the process of strategic planning and development of marketing strategies. This close and deep

collaboration with the marketing teams allows a perfect integration of the efforts of both parties, generating synergies and maximizing the results obtained.

3.5. Internal analysis (SWOT analysis)

Illustration 5: Simbionte SWOT Analysis



Source: Self-made

Internal factors:

- **Weaknesses:**
 - Limited resources. As a new company, Simbionte has a limited budget to access advanced tools and technologies.
 - Need for subcontracting of design services.
 - Low scalability of the business model.
- **Strengths:**
 - Network of contacts in the industry. Having been working in the biotech industry or scientific marketing, Manu and Dani have established a valuable network of contacts, giving them an edge for collaborations and business opportunities.
 - Qualified staff.

External factors:

- Opportunities:
 - Rise of the biotechnology industry. The biotechnology industry has experienced significant growth in recent years and is expected to continue to expand. This provides opportunities to offer scientific marketing consulting services to emerging and established companies in the field.
 - Technological advances. Technological advances in the field of biotechnology are rapidly changing the way products are developed and marketed.
 - Demand for specialized marketing experts. As the biotech industry grows, companies are increasingly seeking scientific marketing experts who understand the technical and regulatory aspects of the industry.
- Threats:
 - Regulatory Changes: The biotechnology industry is subject to strict government regulation. Changes in regulations may affect the processes of marketing and promoting products.
 - intense competition.

3.6. External analysis (PESTEL analysis)

The Simbionte company operates mainly in the biotechnology sector. That is why, below, an external analysis of this sector will be carried out using the PESTEL method.

- Political factors:

A BIOPOLIS report makes a comparison of the effectiveness of the different European models of national policies in the field of Biotechnology during the period between 2002 and 2005. The authors point out deficiencies in the Spanish research and development system as weak points. interaction and coordination between multiple actors, as well as the scarce participation of the productive sector and scientists from the biotechnological field in the strategic planning of public management in this field. The concentration of competencies, which were previously divided between three different ministries, under the authority of the Ministry of Science and Innovation, represents a first step towards a comprehensive management of all available resources to promote the growth of the biotechnology sector in all its dimensions. The establishment of a dialogue with all the actors in the complex ecosystem of science and innovation will be one of the priorities to design new tools that allow biotechnology companies in Spain to compete in the global market. (Martinez Alonso, 2010)

- Economic factors:

Biotechnology has had a significant economic impact in various sectors. In the food industry, starch diagnosis and bioconversion systems have been developed, sweeteners and flavorings have been commercialized, and processes for the production of juices, amino acids, pigments, and vitamins have been designed. Fermentation products, enzymes for cheese making, dairy, and hybrid yeasts have also been created. In the agricultural sector, transgenic varieties of tomatoes, potatoes, cotton, tobacco and soybeans have been created with characteristics of resistance to herbicides, viruses and insects. In other sectors, biotechnology has influenced the production of methane and ethanol, as well as the selective growth and propagation of trees and ornamental plants. In the medical field, biotechnology is expected to revolutions therapeutic methods for hereditary diseases. Products such as human insulin, gamma interferon, and monoclonal

antibodies have been developed. An increase in genetic diagnostics, drugs and vaccines for parasitic diseases is expected. Biotechnology has initially been financed with public funds, but numerous companies have emerged in the sector that have promoted investments. The number of patents related to pharmaceuticals, chemicals, biomass and food has increased significantly in recent decades. (Moreno, 1997)

- Social factors:

From the social point of view, it can be concluded that Spanish citizens have a highly positive view of biotechnology (more than 80%). In addition, they consider that this perception is reflected by the media. There is confidence in its progress and support for the idea that biotechnological development can generate economic growth and, in turn, improve social well-being. In fact, 90% of respondents agree or strongly agree with government funding of biotechnology.

Biotechnology is perceived as socially beneficial and morally acceptable, although there is also a tendency to recognize that these advances carry certain risks. (Camacho, 2010)

- Technological factors:

Disruptive digital technologies are changing the way we live today, and their application in the field of biotechnology represents a great opportunity to continue innovating and finding solutions to the challenges we face as a society in our daily lives. Ana Polanco, president of AseBio, stated this during the presentation of a document prepared in collaboration with the ASD (Digital Health Association), which compiles the main conclusions on the state of the new disruptive digital technologies.

According to experts, although the biotechnology sector is receptive and open to the adoption of these technologies, there are still few benchmark initiatives and a paucity of quality data available. In addition, they point out that academic knowledge is not always connected with other economic agents, such as companies.

In this sense, greater communication is demanded between all the actors in the innovation system to make the most of this opportunity and improve competitiveness. Jaime del Barrio, president of ASD, highlights the value of data and artificial intelligence to allow biotech companies to move quickly and generate the scientific evidence necessary for research and development of products and services.

Although the pandemic has shown the potential of disruptive technologies, experts conclude that there is still greater potential for development. These technologies, combined with the knowledge and tools provided by biotechnology, are key to prevention, monitoring, discovery of new drugs, and preparation for future health emergencies. (Diariofarma, 2022)

- Ecological factors:

Biotechnology applies, uses and regulates biological systems for the restoration of polluted environments (whether water, land or air) and for beneficial processes for the environment, sustainable development and ecological technologies.

Some of the objectives pursued by biotechnology for the benefit of the environment are the following:

1. Optimization of various technologies related to the natural and terrestrial environment.
2. Improvement of soil quality.

3. Use and exploitation of microorganisms in environmental processes.
4. Greater preservation of fruits and vegetables.
5. Crops with greater resistance to drought and stress. (Solmeclas, 2019)

- Legal factors:

Paula González de Castejón, partner in the biotechnology area of DLA Piper's intellectual property and technology department, assures that it is a sector in which there are many legal areas to address. "The main regulatory risks can arise due to the lack of protection, or inadequate protection, of the project's intellectual or industrial property, as well as due to problems in obtaining the corresponding marketing authorizations that must be granted by the health authorities," he highlights.

The lawyer insists that, in this highly dynamic sector and in which reality advances faster than regulations, it is not only essential to keep up to date with new legislation, but also with "interpretation guidelines or working documents that can be published by industry associations or health authorities.

According to the lawyer, the possible relevance of the legal risks will depend to a large extent on the moment in which the investment is made. "The more advanced the biotech project is, the lower the uncertainty in terms of regulatory risks. For this reason, it is very important to obtain legal advice from the early stages of this type of project," he says. (Moreno, 2019)

3.7. Simbionte company process flow diagram

The beginning of the Simbionte flowchart is marked by two techniques to attract customers. On the one hand, the marketing and sales department carries out outbound sales practices to get customers. These practices consist of creating a pipeline with potential customers. In this pipeline, the name of the potential client (name of the company), the sector in which it operates, the contact details and the person from the company to contact, etc. are noted. At the same time, this same department carries out inbound marketing practices to reach the brand. This is done through a newly created social media strategy. Content related to science and marketing is published on networks such as Twitter and LinkedIn, where the tone is more formal; or Instagram and TikTok, which use a closer and more casual tone. After this, the client contacts the company. The team holds a discovery meeting with the client to get to know him. In this meeting, the main objective is to find out who the client is and to get to know them, including their activity and sector, and they discuss the different ways in which Simbionte could help them. From this meeting, the marketing and sales team creates a work proposal and delivers it to the client. Next comes the first decision: does the client accept this proposal? If the answer is negative, the process ends here. Otherwise (the answer is positive) another decision opens: what services are going to be contracted? This decision branches into five options: digital marketing, content marketing, design and build, pitch decks, and scientific and medical writing:

- Digital marketing. Simbionte creates a digital marketing strategy for the client (sales funnel, customer journey strategies, Search Engine Optimization positioning campaigns, conversion rate optimization and analysis). The strategy

is executed and the client receives a report with insights after the execution and measurement of the strategy.



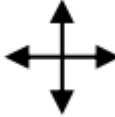
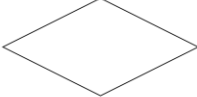

- Content marketing. For this service, Simbionte creates and designs a content strategy, this includes both the creation of the content itself and its scheduling. The strategy is executed and the client receives a report with insights after the execution and measurement of the strategy.
- Design and build. This service is divided into two categories: web development and brand book creation. For the first, a web page is designed and developed for the client using no-code tools, and the client receives a guide on the operation and administration of the web. For the creation of brand books, Simbionte is in charge of creating a logo, adapting the typography and color palette, storytelling, etc., all with the aim of giving identity to the client's brand. Finally, the brand book is delivered to the client.
- Pitch decks. A pitch deck is a brief description that provides an overview of a business to investors. In this type of presentation, the product is usually shown, the business model shared, the income generation strategy analyzed and the management team presented, among other aspects. (Bello, 2023) This is where one of Simbionte's two lines of business appears, since this service is delegated to DeckReady. DeckReady is a business line of Simbionte, whose main purpose is to create personalized pitch decks to facilitate the fundraising process. To carry out this service, the discovery meeting with the client is essential, since all the valuable information about the client's project has to be collected. After this, the ideas are ordered and the presentation is prepared. The client receives the presentation in an editable format so that he can make the adjustments he deems appropriate and can use the presentation format as many times as he wishes.
- Scientific and medical writing. This last service is delegated to Somos Medical Writers. We are Medical Writers is Simbionte's second line of business. His activity is based on helping companies that outsource medical writing services to write content, either because they lack in-house talent or because of a surplus of work. It consists of writing scientific or medical material (articles for blogs, news, brochures, etc.). It will be in the discovery meeting where the text format to be written is specified. Once written, the client receives the text ready to be published.

Once those services that have been contracted have been completed, the client pays the corresponding amount. In addition, there is a meeting in which the client offers feedback to Simbionte so that the company can find out the degree of client satisfaction and the aspects to improve in each service. In this last meeting, future collaborations will also be negotiated, that is, if the client will contract the services of Simbionte again or not. If the answer is affirmative, Simbionte will create a new work proposal, otherwise, the process will end.

The steps in green represent the moments of truth, that is, those steps in the process in which the customer is in direct contact with the service and a perception of quality is forged.

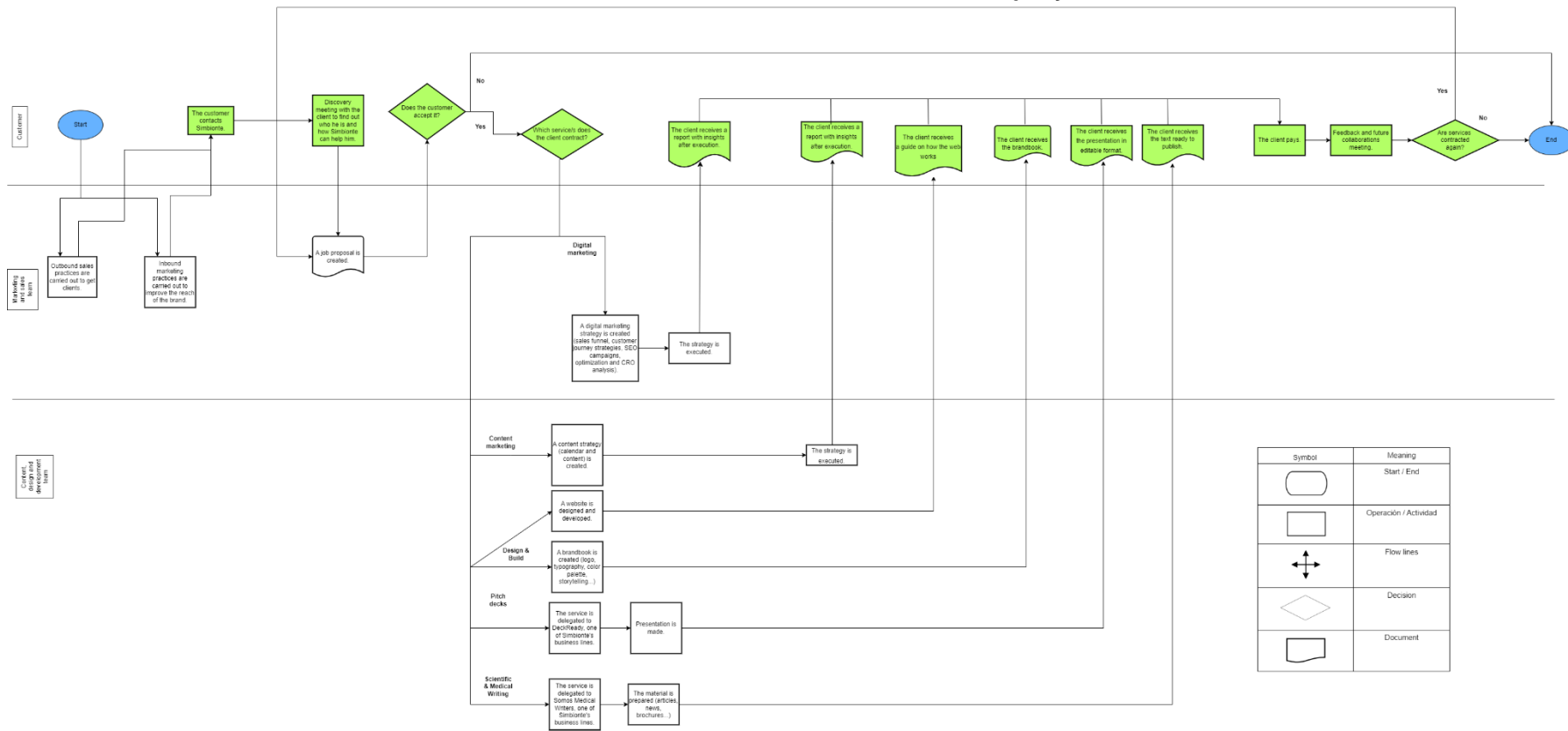
The symbology that has been used to develop the flowchart in this work is the one shown in the following table:

Table 6: Symbology for this work.

Symbol	Meaning	Utility
	Start / End	Indicates the beginning and end of the flow chart.
	Operation / Activity	Symbol that represents the performance of an activity related to a process.
	Flow lines	It serves as a link between symbols and indicates the order in which the operations must be carried out.
	Decision	It indicates a point within the process at which different decisions can be made.
	Document	It represents any type of document that enters, is used, is generated or leaves the process.

Source: Self-made.

Illustration 6: Flowchart of the Symbionte company.



Source: Self-made

3.8. Results

Given that continuous improvement is essential in the business world to maintain competitiveness and achieve long-term success, identifying and emphasizing the aspects that require improvement in company processes is a key task to optimize efficiency, quality and customer satisfaction. In this context, a list of aspects to consider to improve the process of the scientific marketing company Simbionte is presented below. These tips are designed to help identify areas of opportunity and provide practical ideas to foster growth and operational excellence. The main points of improvement are:

1. Implement a more structured lead tracking and management system. This would allow greater control and monitoring of interactions with potential customers, which would help optimize customer acquisition and improve conversions. To do this, you can follow these steps:
 - Define objectives and monitoring criteria. That is, specify what is sought with the implementation of this system.
 - Select a management tool. This tool must be adjusted to the needs and budget of the company. An example of this type of tool can be a Customer Relationship Management (CRM) system.
 - Design a clear and efficient process for capturing, storing, and tracking customers. In addition, workers who are going to carry out this function must be trained in the use of the system.

2. Implement a more structured and continuous feedback system with customers. This would allow a deeper understanding of customer needs and expectations, as well as the identification of improvement opportunities and areas of expertise. This system should be adaptable and flexible in order to adjust to changes in customer needs and expectations. Possible steps to follow for the correct implementation of this system can be:
 - a. Clearly define the objectives of the feedback system. What information do you seek to obtain from customers? What is the purpose of the feedback?
 - b. Identify metrics that help to measure the relevant aspects for the achievement of one's objectives.
 - c. Choose the appropriate channels to carry out feedback: online surveys, comments on social networks, telephone interviews, video calls, forms on the website, etc.
 - d. In case of creating questionnaires, specific questions must be elaborated that provide the relevant information. These questions should be clear, concise, and easy to answer.
 - e. The periodicity must be established, that is, how often the feedback information will be collected. The periodicity will depend on the information needs and the available resources.
 - f. Analyze and act on the results. Identify trends, service strengths and weaknesses, and areas for improvement. This information should be used to make decisions and develop action plans to address the identified problems.

3. Implement a quality assurance system.

Schroeder et al. (2011) establish this series of steps to implement a quality planning, control and improvement system:

1. Define quality attributes based on customer needs. In other words, it must be determined which attributes of the service offered by Simbionte are important to achieve customer satisfaction.
2. Decide how each attribute will be measured. It is necessary to develop an approach to evaluate and quantify the quality of each of the service attributes that have been defined in the previous step.
3. Set quality standards. It is necessary to establish criteria that define the level of quality necessary for each attribute; Generally, these criteria are expressed in the form of tolerances or minimum and maximum acceptable limits.
4. Establish appropriate tests for each standard. Implement appropriate evaluation methods to verify compliance with each established quality standard.
5. Find and correct quality deviations. The causes that can cause a poor quality in the service can be: confusing procedures, lack of training, etc. It is crucial to detect errors and correct them to have the system under control and to be able to continue making improvements.
6. Continue to make improvements.

In view of the flowchart, these systems could be implemented in the Design and Build services. To do this, Simbionte could set its own values of simplicity and innovation as attributes, since they are the easiest to measure. An example of a standard for simplicity could be that the use of a web page created by Simbionte is intuitive.

4. Apply the Lean methodology of A3 Thinking. This tool would help the Simbionte team to concisely document and visualize the problems they are facing, analyze the root causes, propose solutions, set goals and track the results achieved. By using A3 Thinking, Simbionte can structure its projects and tasks, collaborate more effectively with clients and other internal teams, and have a clear vision of the continuous improvement process. In order to apply this tool, you can follow these steps:

- Problem identification and analysis. The team must come together and define the challenge it faces. To identify the causes of the problem, tools such as the cause-effect diagram can be used. After this, a detailed analysis of the data and relevant information should be carried out to better understand the situation and the factors that influence the problem.
- Proposal of solutions and establishment of objectives. The generation of ideas and team collaboration to propose possible solutions should be encouraged. After this, the one that is most viable and effective to face the problem must be selected. Clear and measurable objectives must also be established to evaluate the success of the proposed solution.
- Implementation and monitoring. A detailed action plan should be drawn up that specifies the steps to follow to implement the solution, assigns responsibilities and establishes a schedule for carrying out tasks. It is

necessary to check that the established objectives are being met, otherwise it will be necessary to make adjustments.

5. Due to the amount of work involved in correcting errors in the website creation service, it is also proposed to carry out inspections during this process so that the client obtains the website in perfect condition. These inspections could be carried out after the creation of each section of the web and in them the staff must ensure that there is no missing information, that the possible links could be redirected where the client requests, that the visual elements have the desired quality, etc.
6. Finally, although Simbionte is already contributing to Sustainable Development Goal 13 (Climate Action) by working remotely, holding online meetings (measures that reduce travel) and practically reducing the use of physical resources such as paper to a minimum; You could bolster your contribution by implementing a new service you might call green marketing. In this service, you would create marketing strategies that promote the adoption of sustainable practices and the use of clean technologies (such as low energy consumption equipment) for companies in your sector. Another SDG that Simbionte can contribute to is SDG 8 (Decent work and economic growth). To do this, Simbionte can help scientific organizations to promote their activities and projects by creating digital marketing strategies that stand out employment opportunities. Finally, as a digital marketing consultant, you could promote collaboration between companies, non-profit organizations, academic institutions by organizing scientific events, webinars, etc. In this way, it would contribute to SDG 17 (Partnerships to achieve objectives)

4. CONCLUSIONS

In conclusion, the proposed objectives of detecting possible errors in the production process, duplication of functions, possible improvements in the quality of the product/service and offering solutions to possible problems are related to the results as follows:

1. The goal of implementing a more structured lead tracking and management system would allow greater control and tracking of interactions with leads, optimizing customer acquisition and improving conversions. This structuring would improve the customer acquisition process that Simbionte carries out.
2. The implementation of a more structured and continuous feedback system with clients would lead to a deeper understanding of their needs and expectations, as well as the identification of opportunities for improvement and areas of specialization, adapting to changes in their needs and expectations. In this way, Simbionte could improve the adaptation of its services to the needs of customers, thus increasing the quality of service perceived by them.
3. The implementation of a quality assurance system is related to the objective of seeking possible improvements in the quality of the service offered. This system

would make it possible to establish quality standards, carry out tests and correct deviations, ensuring a high-quality service.

4. The application of the A3 Thinking Lean methodology would help the Simbionte team to concisely document and visualize the problems, analyze the root causes, propose solutions, set objectives and follow up on the results obtained. This would make it possible to offer solutions to possible problems identified in the processes related to operations management.
5. The proposal to carry out inspections during the web creation process seeks to correct errors and deliver a high-quality final product to customers. This would contribute to improving the quality of the product/service offered by the company and to avoid possible problems later in this process.

Additionally, two additional actions are mentioned that could be carried out to strengthen the contribution of Simbionte to the Sustainable Development Goals (SDG):

- Implement a new green marketing service to promote sustainable practices and the use of clean technologies.
- Promote decent work and economic growth through digital marketing strategies that stand out employment opportunities and promoting collaboration between companies, non-profit organizations and academic institutions.

Finally, as a future line of research to continue this study, it is suggested to explore the possibilities of automating some processes in Simbionte. Automation has proven to be an effective tool to increase efficiency and productivity in various sectors, and could have a significant impact on the field of operations management of the company in question

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